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Nutritional Anemia in Infants

THE iron stored in the infant's liver at birth is rapidly depleted during the first months of life (Mackay,¹ Elvehjem²). During this period the infant's diet contains very little iron—1.44 mg. per day from the average bottle formulae of 20 ounces, or possibly 1.7 mg. per day from 28 ounces of breast milk (Holt³). For these reasons, and also because of the low hemoglobin values so frequent among pregnant and nursing mothers (Coons,⁴ Galloway⁵), the pediatric trend is constantly toward the addition of iron-containing foods at an earlier age, as early as the third or fourth month (Blatt,⁶ Glazier,⁷ Lynch⁸).

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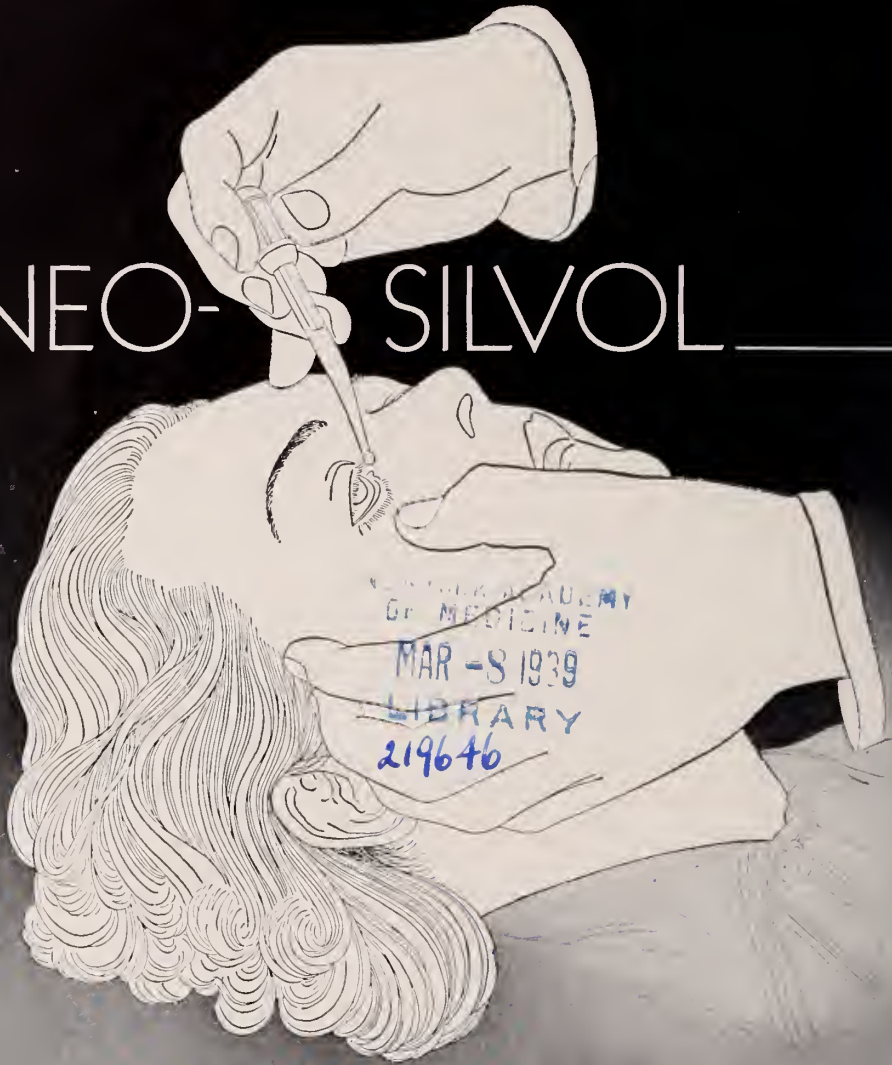
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The first procedure (1a) depends upon the nature of the response to administration of pure vitamin B₁. The second procedure, which has been more widely applied, makes use of the Cowgill formula for calculation of vitamin B₁ requirement. By consideration of the actual vitamin B₁ intake and the calculated vitamin B₁ requirement in any specific instance, the probability of mild avitaminosis B₁ may be evaluated (1b).

It is difficult to estimate the frequency of mild vitamin B₁ deficiencies in the United States. However, until such information is at hand, it is not illogical to suggest that latent avitaminosis B₁ must be regarded as an active possibility in some cases which may come to the attention of the medical practitioner. Fortunately, several factors

are operative which give assurance that eventually the incidence of latent avitaminosis B₁ will be reduced to a minimum.

First, those concerned with human nutrition have today more definite information concerning quantitative human vitamin requirements than ever before in history (2).

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1a. 1935. J. Am. Med. Assn. 105, 1580.
b. 1934. The Vitamin B Requirement of Man, G. R. Cowgill, The Yale University Press, New Haven.

2. 1937. J. Am. Diet. Assn. 13, 195.

3. 1936. J. Nutrition 11, 383.
1934. Ibid. 8, 449.
1932. Ibid. 5, 307.
1932. Ind. Eng. Chem. 24, 457

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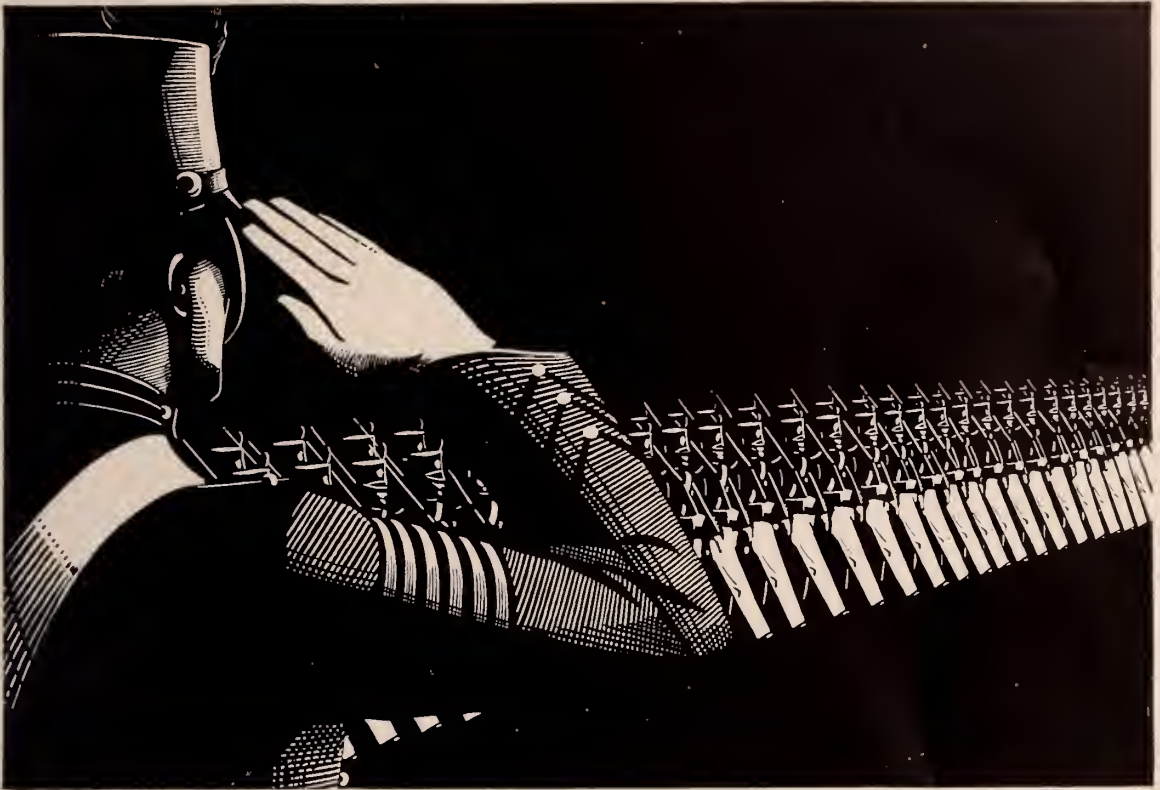
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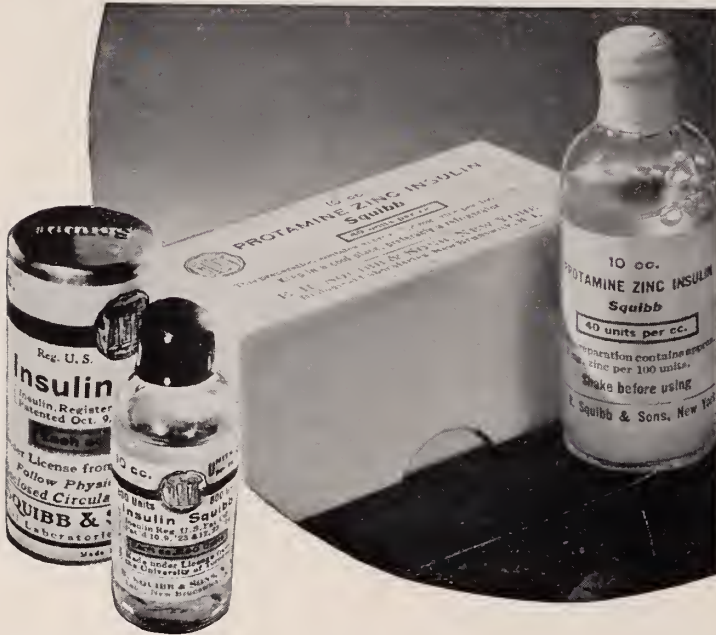


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**Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245
Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154
N. Y. State Jour. Med., June 1935, Vol. 35, No. 11
Arch. Otolaryngology, Mar. 1936, Vol. 23, No. 3
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60*

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PRACTICAL POINTS IN RELATION TO CLINICAL SURGERY*

W. WAYNE BABCOCK, M. D.,**
Philadelphia, Pa.

Mr. President and members of the State Society:

It is a pleasure to be with you today, and I thought it might be of some interest to go over with you some of the simpler things in surgery which, no matter what you practice, you may have occasion, in these days of rapid traffic and many accidents, to use. One never knows, when he goes out in an automobile, what will happen before he comes home.

Not long since near the North Philadelphia Station, for example, in a collision, windshield glass severed a woman's jugular vein. The pressure of a bystander's finger would have saved her life but she bled to death before she reached the hospital but three blocks away. In a similar case a policeman was found with his fingers in a man's neck. "Doe," said he, "I don't know that I am doing right but every time I release the pressure there's an awful spout of blood." His common sense saved the man's life. With divided major vessels even physicians have been known to stand by, feeling helpless from lack of instruments or lack of surgical training. This illustrated by a recent cut-throat opening into the pharynx. A doctor responded and noting little evidence of life merely sent for a police control. While waiting another doctor came in and ignoring the admonition of the first that it was useless to do anything, wiped obstructing blood clots out of the pharynx so the man could breathe and held the divided jugulars with his fingers until he reached Temple University Hospital where

the patient is now recovering. Your God-given hemostats are your fingers and thumbs. As noted in the daily papers recently, a policeman accosting a bandit was shot through the femoral artery near the groin. The policeman tried to hold the bandit until a brother officer subdued the man, then fell on the sidewalk, and died of hemorrhage fifteen minutes after his admission to a hospital. Every policeman as well as every doctor should know how instantly to control such bleeding. If the vessel is too high to be controlled by the pressure of a finger and thumb in or above the wound or by a tourniquet about the thigh, the abdominal aorta should be compressed until operative facilities are available. To control the abdominal aorta and its tributaries, for example, with a man lying face up on the ground or on a table, simply place your fist over the navel and put sufficient of your weight upon it to stop the flow of blood. We should especially encourage the laity to become familiar, as they did during the War, with methods for controlling the larger vessels by compression.

If you undertake any type of surgical practice plan your offices so that you will work with the least effort and the greatest efficiency. It took me about thirty years to develop the most efficient arrangement in my office and examining rooms, and while what I finally worked out may not fit your type of practice, yet it may carry a helpful suggestion. Perhaps you can best get the idea from photographs thrown on the screen.

(Slide) I found, first of all, that I was using rooms for examining and treating patients that were too large, and that I used the various facilities with unnecessary expenditure of energy and waste of time. Finally as I planned offices for the seventh time I considered only efficiency and decided that the

* Read before the Medical Society of Delaware, Wilmington, October 12, 1937.

** Professor of Surgery, Temple University.

examining room should not only be conveniently arranged but so small that little walking was required to reach any desired appliance. Therefore, three small examining rooms were made that centered from the desk of the general consulting room.

While ventilation should be adequate, windows are unnecessary as examinations, dressings and the like are with rare exceptions best made with controllable artificial light. As soon as you step within the door of an examining room you should have within reach of your hands practically everything you may have occasion to use. (Slide) Thus the wash stand, rubber gloves, electrical and other examining appliances are placed close to the door. Concealed behind the panelled walls in the order of usual employment are diagnostic and other instruments, dressing materials, flasks of solutions, instruments, ampoules of procaine sclerosing solutions, vaccines and the like, tumblers containing sterile hypodermic syringes encased in test tubes and various drugs and unguents for topical application. The front of a convenient lower panel drops down exposing a large paper bag, a receptacle for waste material. The small upper panels when open form convenient shelves, those below have doors carrying strips of adhesive plaster on the inner face, while the lower panels are largely for storage.

(Slide) Thus if a nervous child or woman enters, the panels being closed, nothing is seen to arouse apprehension or fear. Facilities for minor operative procedures are instantly available and the necessary procedures can often be completed before the patient realizes what is being done. We no longer wash and irrigate wounds as was formerly the fashion and the large pans and bowls of solutions are not needed. With cotton swabs wet with energine the skin around the wound is cleaned off adhesive plaster and gauze, after which 70% alcohol is usually employed.

Instruments and necessary dressings are close at hand. (Slide) Here are alcohol sponges in a glass container and various materials for intravenous injections are conveniently placed.

(Slide) Altogether I have found this a very convenient arrangement.

(Slide) Incised wounds especially from broken automobile glass are at present very common and are often crudely united by a tired or poorly trained intern. Often the patient objects to the disfigurement and later seeks someone who will excise the scar and do a better job. How much better if the closure had been accurate and artistic the first time. With careful cleansing, complete hemostasis without irritating ligatures and accurate apposition without constriction, nearly any incised wound will heal with suppuration. But do not unite the skin until all of the larger vessels are ligated and any open viscus properly closed. Some years ago a man with a cut throat opening the trachea was brought to a doctor's office in syncope; the bleeding had largely ceased and the doctor delayed sending the patient to the hospital until he had completely closed the skin wound but the vessels and trachea were left open. As he was being prepared in our hospital he coughed, blood gushed from divided jugulars and for a time the surrounding air was filled with bloody spray and foam from the mouth and nose as the man struggled for his breath. Only by very quickly ripping open the tightly closed skin wound was the man saved from death by suffocation and hemorrhage. Unless one is well equipped for handling the emergency incised wound it is better to control bleeding, apply an emergency dressing and not waste time before sending the patient to the hospital.

In the treatment of incised wounds, besides careful sterilization, hemostasis and accurate suture, there is the importance of rest and support. Many years have passed since Hilton wrote his noted book on "Rest and Pain," but it is still a good book to read because so frequently we find that a wound does well because the patient keeps quiet and keeps the part quiet, and does badly because he was permitted to move the part or to move his body. So with any extensive wound, even though it is only an incised wound, the patient is better off in bed, and if the injury is not severe enough for complete rest, the part involved as the arm or hand, should be kept in a sling so that the patient does not use it during the early days after the injury.

As a rule, no drain is required for an incised wound, and if you have properly cleansed and closed the wound and have kept it at rest early aseptic union should follow. Upon the face supporting dressings to limit venous or capillary oozing may be used for the first twenty-four hours. After this if the wound is near the mouth, eye or nose, it usually becomes saturated with food, saliva, nasal secretion or tears so that it is much better, after the first twelve or twenty-four hours, to take off all dressings and let the wound heal under a scab.

(Slide) Tissue reactions to various sutures and ligatures have interested me very much and we are learning more and more about this important factor in wound healing. Probably we are rediscovering what was known years ago, especially that catgut produces tissue reaction that delays healing. When we began to experiment with suture materials Doctor Kolmer told us that catgut being derived from sheep would probably cause reactions as he had found that antigens obtained from sheep caused more reactions than those from other animals. Halsted, years ago, found it desirable to use silk in his wounds to the exclusion of catgut. Before Halsted's time in the eighteen forties, Marion Sims after several years of failure discovered that he could successfully close vesico-vaginal fistulas with silver wire sutures whereas the other suture materials he had tried led to failure. He had obtained the suggestion as to the value of metallic sutures from Doctor Mettauer who for ten years or more had successfully closed the openings with lead wire. Sims noted that the purulent urine and suppuration in the wound which had previously been invariable did not occur when the silver wire sutures were used.

We have been passing through an epidemic in the use of fascial sutures. Doctor MacArthur of Chicago a third of a century ago had written on the use of sutures made from the aponeurosis of the external oblique muscle in hernio-plasty. Gallie and LeMesurier reintroduced the method using long strips of fascia lata. From animal experiments it seemed that the fascia lived and reinforced the wound. From the Hospital for Ruptured and Crippled in New York now comes a report

of results in 1485 hernioplastics in which fascial sutures had been used. Nearly nine per cent of the wounds became infected while over twenty-seven per cent of the hernias recurred, and over thirty-five per cent when ox fascia instead of autogenous fascia was used. Moreover at reoperation evidence of absorption of the fascia was frequently found. In comparison the use of chromic catgut sutures was followed by recurrence of the hernia in 12.7 per cent, while silk sutures gave but 3.5 per cent of recurrence (*Ann. of Surg.*, Sept. 1937.)

Several years ago we studied the reaction of human tissues to various suture materials in over one hundred patients. At the end of twenty-four hours silk evoked little reaction. At this time, however, there was a marked blush or flare, and a distinct wheal or swelling about embedded catgut especially chromic catgut. (Slide) After forty-eight hours the reaction had markedly increased and at the end of a week (slide) we found a narrow zone of gangrenous or necrotic tissue about both plain and chromic catgut, the adjacent tissues having died in the attempt to absorb the catgut. From silk there was a little flare without distinct wheal or necrosis while about silver and rustless steel wire there was no evidence of reaction at the end of a week. Thus it was evident that catgut in a wound delays and is a barrier to healing. This evidently explains many of the disruptions of wounds. It also explains the lag in wound healing.

(Slide) Silver wire, we found, produced little irritation but was weak and often pigmented the tissues. Much better was annealed alloy (stainless) steel wire. This is exceedingly strong, with a tensile strength up to 300,000 pounds or more to the square inch. It consists of steel alloyed with chromium and nickel, resists acids and alkalis and will remain indefinitely in the tissues without irritation or tarnish. It is very inexpensive; you may buy a mile in length of the small sized wire for about fifty cents. It is so flexible that you can tie it in a fine knot,—just as with silk or catgut, but the knot should be tied with a square or surgeon's knot to prevent slipping. When you bury the alloy steel wire in a septic wound, instead of causing irritation, it will heal in the wound and the tissue will close

over it, something that most other non-absorbedly sutures, except silver wire, will not do. So we have come to use this very largely.

The flood of new antiseptics has perhaps confused the profession these later years. Most of them have, through extensive advertising, been popularized far beyond what their merits justify. An antiseptic may kill bacteria in the test tube and in tissues be harmful because it inhibits the healing process. A healing suppurating wound it is to be preferred to a dormant sterile one. We still believe in a laudable pus. I remember when formalin was introduced as an antiseptic for wounds, it embalmed and killed the tissues. A slough of devitalized tissue formed which slowly separated and healing was greatly delayed. My former chief, who used formalin in his rubber gloves nearly lost all his nails from the suppurative paronychia which followed. As their deficiencies have been demonstrated by trial and experiment we may say that most of the newer proprietary antiseptics could be discarded without loss to surgery. Apparently the inexpensive *Tincture of bichloride of mercury* (Vaiehulis and Arnold, S. G. O., Sept. 1935) consisting of mercuric chloride 1 gm., chrysoidin 2 gm., hydrochloric acid 10 cc., acetone 200 cc., alcohol 600 cc., water to make 1,000 cc. is superior. It is a modified Harrington's solution and by test has much more value, as a skin disinfectant than proprietary solutions that have been placed on the market. It only costs about twenty cents a pint and our results from its use have been entirely satisfactory.

Dakins' solution, which aroused a great deal of attention during the War is not adapted to private practice, and is rarely properly used in hospitals. In a wound its antiseptic value drops to zero within two hours. Therefore, unless the wound is correctly and intimately flooded at least every two hours antiseptics is not maintained. The solution is irritating as well as unstable and should not be used on gauze or as a wet dressing. Bichloride of mercury in weak solution is desirable for wet dressings and does not prevent wound healing. Cresol and phenol preparations, of course, should rarely be used in open wounds. Applied to the fingers or toes as

a wet dressing, gangrene may follow even one or two per cent solution.

Dressings for wounds should support, but not constrict, and for an acute infection should completely envelop the part so that it cannot be used or manipulated. Wet dressings, so valuable for infected wounds, should be so applied as to remain wet and warm for several days. It is not enough to put on a wet dressing that will dry out in the course of the next half hour or so. You should surround the wet gauze which should have ample bulk with an impermeable layer and then an insulating layer of cotton. Cold application should not be continued beyond the first twelve or twenty-four hours of an infection. Cold retards healing and if continued often will blister or necrose the skin.

We rarely replace drains. The old plan was to pull out the drain and repack the wound every day or so, while the patient squirmed and suffered because of the pain you were giving him. Now when a drain is taken out we usually have a syringe filled with a twenty-five or fifty per cent ointment or plumb of bismuth subcarbonate, or better, bismuth subiodide. Without force we squeeze from the syringe a wormlike mass of the paste into the wound. This is painless and keeps the wound open. As the wound heals, the paste is pushed out without pain. Instead of having the wound corked with pus-filled gauze, the bismuth plumb facilitates drainage, need only be renewed every three to six days.

I would emphasize the danger from the early removal of gauze drains from septic wounds. In one year, at one of our large Philadelphia hospitals, there were six deaths reported from the early removal of gauze drains from patients who had had a septic appendicitis with peritonitis. These patients had been doing well until lymph spaces were torn open by the removal of the adherent gauze, when a fatal bacteremia followed. Especially where there is a streptococcal infection do not invite the entrance of these very dangerous micro-organisms into the blood stream by pulling out adherent drains. With septic wounds, packed with gauze, leave the gauze in seven or ten days or until it loosens.

I am sure that many deaths have occurred from this form of meddling surgery. Doubtless some of you will recall cases in which the patient did well until someone dragged out an adherent drain.

With all wounds and dressings tension or pressure is dangerous. Here, for example (slide) is a photograph of a lamentable result of such pressure. The child had broken her leg, and the physician thought it a good idea to use the child's shoe for extension. He fastened a cord and weight to the shoe and after two weeks of suffering you can see the result; exposed tendons and a foot partially gangrenous and impaired for life. We should not use pressure without constant supervision. This especially applies to the use of plaster casts. It is a very good rule, if the patient has severe pain after the reduction of a fracture to at once take down the dressing and find out what is causing the pain. An uncomplicated wound or reduced fracture should not be painful to any marked degree. Besides pressure an undiscovered and unreduced dislocation may be found.

I remember one boy who lay in the hospital for a month, and the nurses all thought he was a most unreasonable and difficult boy because he cried all the time. A fracture of the femur had been treated but not a dislocation of the hip. If the pulse beyond a fracture disappears and does not return on removal of dressing and revision of the fragments, immediately consider division of constricting skin and possibly an open reduction to prevent a Volkman's contracture. Many extremities have been permanently crippled from failure to observe these warnings.

(Slide) Here is an illustration of another result of pressure. This woman had had a Caesarian operation about twelve years before, and as so often happens, the closure of the wound was defective—possibly it had been turned over to an untrained assistant, and an enormous hernia followed. Now we have come to sew these wounds in layers with alloy steel wire to prevent this dangerous sequence to abdominal operation. To hold the great hernial mass the patient put on a very tight bandage. She was diabetic and we have just heard this morning about the poor vitality of

the tissues of diabetics. A pressure sore followed which ulcerated through into the herniated bowel, and here you see feces escaping from the large ulcer. A few days later the patient died.

(Slide) The next patient pictured had been shot through the back with a resulting paraplegia. Adequate nursing was not available and bed sores spread until it was necessary to amputate both legs. The bony spine is exposed as well as the trochanters and sacrum. It is a good rule when an incapacitated person is bed fast to roll him an eighth or a quarter of the circumference of the body every two hours. By such shifting, long continued pressure on one point, is prevented.

We used to emphasize the trophic influence in paralysis but during the War we found that the turtle nails and tender scaly skin and extensive atrophy after division of mixed nerves rapidly improved under physical therapy. The changes were not due directly to lack of innervation but resulted from lack of use.

(Slide) Contused wounds are especially important, because with contusion there is loss of vitality and from the tension of the skin resulting from the secondary swelling, the circulation may be cut off. Where bones and tendons are exposed we try to cover them with muscle but if the contusion is severe we do not close the skin.

(Slide) Where there is crushing, we should sterilize, but not traumatize; trimming away tissue that is dead, and what is very important, relieving tension if necessary by additional free incisions. (Slide) For example, a man with a severe crush of the leg may need anterior and posterior incisions through the skin and fascia from the knee to the foot, so that when secondary swelling occurs the skin will not act as a tourniquet (slide) and lead to gangrene.

A man admitted to our hospital had caught his forearm between the bumpers of the old type of freight train and it was crushed flat. The radius and ulna were in little fragments. Several surgeons looked at the arm and said that amputation of the arm was the only treatment. But rarely except with gas bacillus or other serious infection is delay in amputat-

ing harmful. We made incisions from the fingers to the elbow on each side of the forearm. Between the separated muscles the fragments of bone could be seen. These were gently aligned. A large very wet bichloride dressing was applied and the patient recovered without suppuration or loss of tissue—with long broad scars, of course, but with a strong useful, although flattened, arm.

(Slide) About the same time a man entered who had had contused wounds and fractures with divided tendons of the hand from the edge of an iron pulley wheel that had tipped over. The surgeon meticulously united all the tendons and skin instead of laying the part open and avascularity due to the tension of the united skin led to a disorganizing infection that spread up the forearm with loss of tendons and soft tissues and the hand was rendered practically useless. I mention this to emphasize the importance of leaving badly contused wounds wide open until the vitality of the tissues is determined. Divided tendons and nerves are often best left for secondary suture.

(Slide) The picture shows the injury sustained when an arm was caught in a revolving belt, and the hand nearly torn off. The broken bones protrude at the wrist and the hand hangs by a rather small flap of soft tissues. In such a case amputation has been the usual treatment but the parts were aligned without tension and a year later the man had a almost perfect function of the hand. Wire extension for such open fractures is often of great value. For large residual superficial granulating surfaces which heal so slowly, it is often possible to produce a depth sterilization by a ten per cent solution of zinc chloride. The granulating surface is then dissected off, the skin edges freed, slid together and sutured with prompt healing. Providing there is no active infection, this is often much better than skin grafting. Only autogenous skin grafts survive. Those taken from another person eventually melt away (slide) although they may live for two or three weeks. Often we have been misled after grafting by finding the little islands of skin that sprout from residual sebaceous glands spreading over the granulating surface.

Thiersch grafts leave a very unsightly scar and should rarely be used. Much better is a split or full thickness of skin graft which is carefully dissected free from all fat, tacked into position with fine sutures and compressed, so that serum will not float it off, by an overlying rubber sponge and a moist saline dressing. This gives very much better cosmetic results and a quicker recovery.

(Slide) As to infected wounds there are two very important basic types which often are ignored. In one, operation cures and in the other it kills. The class of infections for which operation cures the patient and should be done early is represented by staphylococci, pyocyanus, and gas bacillus infections. In tetanus, if you excise the area of the rusty nail or otherwise produced wound, you reduce the likelihood of lockjaw. In gas bacillus infection immediate operation with free incision, debridement, free drainage and warm, wet antiseptic dressings are very important. Antitoxins are the least valuable of all the measures after the infection is full blown. I have seen two hundred dollars worth of antitoxin used for an infection by the gas bacillus without any apparent effect. But antitoxin as a prophylactic in tetanus is, of course, exceedingly valuable. Of course there should be absolute rest of the entire body, as well as the infected part without constriction by bandage or splint.

(Slide) An example of this type of infection is the ordinary furuncle or boil. Often it may be arrested at the very beginning by injecting half a minim of liquified carbolic acid into its center through a fine hypodermic needle but this should be done carefully and not used on fingers, toes or other parts of low vitality. (Slide) Above all, we should not squeeze or traumatize these infections. For example, here is a boil that was manipulated. Somebody thought he would squeeze the pus out, and the lymphangitis that followed is shown. (Slide) Later these secondary metastatic abscesses developed from a blood stream invasion. The patient's temperature reached one hundred and six, there was diarrhea, and he had a long convalescence with rapid pulse. A simple sharp incision, without any squeezing or manipulation, with wet dressings and

rest, would probably have prevented the prolonged and very serious illness.

(Slide) In the diabetic as shown here a carbuncle of the back of the neck is not uncommon. If a patient is old or in bad general condition, the best thing to do is to quickly excise the entire mass with a very sharp knife under a light gas-oxygen anesthesia, control the bleeding with the uniform pressure of a large wet gauze dressing and the patient will probably rapidly recover instead of sharing the fate of General Hancock.

For younger and more robust patients you may try adhesive strapping and other palliative measures such as the dermatologists use, and for which it is claimed there is less scarring; but the scar may not be so disfiguring even with wide excision. I think it important to frequently cleanse the skin around such infected areas with alcohol on a cotton sponge and to add a handful of chloride of lime mixed with one-half handful of sal soda to each tub of bath water to prevent secondary crops of boils from contamination of the skin.

(Slide) A common and very painful condition is an ingrowing toe nail. This may be overcome by trimming away the corner and edge of the nail that has become embedded in the tissue. Hangnails, of course, should be cut short, but not pulled out. A little pack of cotton, wet with compound tincture of benzoin should be packed in the crevice where it may be left for days. The compound tincture of benzoin is a splendid household vulnerary for abrasions, scratches or superficial cuts. It forms a protective antiseptic varnish which mercurochrome or other commonly used agents do not.

(Slide) In the common paronychia there has been a tendency in late years possibly because dressings have been poor, to turn back this flap of skin from the nail. But all that is necessary in all the cases that I have seen is to take the flat edge of a knife, slip it under and elevate the eponychium to let the pus out. Then, very important, put on a dressing that will keep the area moist and prevent crusting. A stiff ointment, such as the compound resin cerate works exceedingly well. In the early stages you can use the yellow oxide of mercury ointment. Deschler's salve, although old

fashioned salve and used badly by the laity before drainage, is very valuable when used wisely after operation, as it facilitates drainage and stimulates granulation.

(Slide) I have pictured a felon or whitlow that has probably been treated by salves and permitted to spread around the thumb. In these infections an early free palmar incision is essential to prevent destruction of tendon and bone. I believe the best incision to be the old fashioned midline incision. An incision like an alligator's mouth became popular years ago and is largely used, but it divides digital nerves and often leaves that end of the finger anesthetic. It has been thirty years since I conceived the idea of such lateral incisions and to this day a residual paresthesia warns me of its disadvantage. Use copious wet dressings early not merely on the finger but the entire hand, making the dressing rather larger than a boxers' glove so that the patient cannot use any part of his hand or distribute infection by the movement of fingers. If the infection is threatening the loss of part of the digit, keep the patient in bed and in all cases during the acute stage support the hand in a sling so that muscles are not held in tension.

(Slide) If the process has progressed and there is a sloughing tendon and dead bone that can be seen do not remove the bone or tendon until they have been completely separated. If you remove the bone early and damage the periosteum the bone will not reform. If you give it time enough the periosteum will remain alive in most cases, the terminal phalanx will be reformed, with a useful end to the finger.

To aid that process use very wet dressings and keep the entire hand in the dressings, with gauze between the fingers so that maceration does not occur from skin surfaces left in contact with each other and later the smaller cerate dressing will be found convenient and valuable.

(Slide) For anesthesia in incising an infected finger inject the nerves at the base well away from the infected area. I have seen a finger become gangrenous from the injection of a considerable quantity of a solution of

novocaine, containing adrenalin, into the tip of the finger.

If you put a little rubber band around the base of the finger but little anesthetic solution will be required. It is very rare that amputation should be resorted to for these infections.

(Slide) Sometimes, we find a wound that resists local treatment and will not heal. The girl pictured for eighteen months after a little operation for a wart on her finger, had this suppurative and granulating condition. She was treated by the electric needle and the ulceration increased. Although she was only twenty-nine years of age, she had an epithelioma which was not recognized. It is important, when a wound or old burn does not heal promptly to test for syphilis, tuberculosis or a malignant tumor.

(Slide) We illustrate the case of a man bitten by a dog and treated by simple dry dressings and bandage. Infection progressed until it was necessary as you see to amputate his hand through the forearm. By free early debridement, by adequate wet antiseptic dressings so often neglected, and by early sterilization usually such mutilation may be avoided.

(Slide) This is the foot of a man that had been crushed about fifteen years before. The patient is now in the hospital, and ulceration which has recently increased is due to epitheliomatous degeneration. When old scars break down and progressively ulcerate always think of the possibility of cancer. In this man unfortunately it had spread not only in the region of the foot, but to the lymphatic glands in the groin, a result of delay in recognizing the malignancy.

(Slide) The Welch bacillus or similar anaerobic organisms are often carried to the tissues with missiles. A man came in the hospital about two years ago with an aneurysm of the arm due to a gun shot injury a year and a half before. As we removed the aneurysmal sac we found a number of embedded birdshot and thought because there was no gross evidence of infection that they were sterile. We sewed up the wound with tension upon one of the muscles. The tension devitalized enough of the muscle to give latent gas

bacillus a culture medium. This organism requires dead tissue in which it multiplies to obtain a start and then swarms out into the adjacent living tissues which it in turn destroys by gas pressure and toxins.

When a wound contains bits of woollen cloth, missiles from guns, dirt, and especially contamination by fecal material as from stable or street dirt, the possibility of gas bacillus gangrene is to be thought of. Here, particularly, the wound should be left open and tension prevented.

(Slide) Following a laryngectomy in the old man shown, a staphylococcus infection developed that spread through the cellular tissues of the right chest and produced this marked cellulitis, I show it that you may see the effect (slide) of a one to five thousand bromin solution as a wet dressing for six days when the wound was clean and granulating.

In closing I wish to speak briefly on the second type of infection in which early operation kills. In streptococcal infection there often is much swelling and the marked edema gives the sense of fluctuation which with the redness suggests that there is pus in the tissues. It is a mistake to incise early and the treatment should be without manipulation or other trauma. For example, a doctor I knew, in operating for septic appendicitis, pricked his thumb. Within two or three hours he had a chill and a temperature of one hundred and two. Incision of the thumb under anesthesia was promptly followed by another chill and fever of about one hundred and four. Therefore, a few hours later the alarmed consultants again anesthetized the doctor and opened the wound more freely and everted it—again with chill and increased temperature. Then amputation of the thumb was advised, although a full blown blood stream was present which soon was fatal. This is the type of infection in which operation and manipulation kills.

For a streptococcal type of infection from an injury of any type, put on a big wet dressing of yellow oxide ointment, and keep the part and the patient absolutely quiet and consultants from handling, squeezing or doing any operation upon the part—procedures that

convert a local into a blood stream infection. If you are personally thus infected, immediately go to bed, keep absolutely quiet and if necessary, lock the door to keep out meddlesome friends; then you will have the best chance of recovering.

Anthrax is a good example of this second type of infection. In the human it tends to form a carbuncle. In lower animals, like the guinea pig and the rabbit, it produces a rapidly fatal bacteriemia. For years we have tried to treat anthrax infection by killing or removing the micro-organisms by excision, cauterization, the injection of carbolic solution or other antiseptics, and the mortality rate has reached forty and fifty per cent. Then somebody had sense enough to let the body have a chance to protect itself against the infection. So the patient was simply put to bed, a protective dressing applied and the part immobilized. Nothing was done to the anthrax carbuncle. Thus treated, the mortality of upwards of five hundred cases collected in England was about five per cent. Note the danger of meddlesome surgery which, of course, led to anthrax septicemia.

In Philadelphia, where many work with imported hair and hides, anthrax occasionally develops. By putting the patient to bed so splinted that he cannot move the infected part which is covered with a thick layer of yellow oxide of mercury ointment, most patients may be discharged in from ten to twenty days practically well.

Occasionally death occurs after the extraction of a third or second molar because the dentist with the onset of fever thinks it necessary to curette the socket. I hope you will bear in mind this differentiation between infections which need to be left alone and those in which early operation is needed. 1720 Spruce street.

DISCUSSION

PRESIDENT WHITE: It is not necessary for me to tell you that we have had a most illuminating discussion, and I do feel that certainly some of you have some questions you would like to ask.

DR. LAWRENCE JONES (Wilmington): I would like to thank the doctor for the most excellent instruction he has given us. Several

questions arose in my mind, one when speaking of forms of ligatures.

I wondered whether he used this silk in such procedures as gastrostomy. I have not had a great deal of experience in using wire. I recall, a year or so ago, a patient who was a sailor, and he had been having a great deal of pain in the abdomen. He was brought off the ship to the hospital.

It seems he had had an appendectomy in Leningrad about a year before, and it was in that location that he was having his pains. We examined his abdomen and felt something rough, so we x-rayed him and found he had been sewed with wire. There were several tiers of wire sutures that were in there, and they seemed to be acting as an irritant. I did not see the patient later on and I do not know what the ultimate procedure on him was, but it seemed to me that that was an awful lot of foreign material in there.

DR. BABCOCK: Could you tell what kind of wire it was? Of course, there are only a few metals or alloys that are non-irritating and in any case an excess of wire should not be used and the ends of the knot should be cut short.

DR. JONES: No. As I say, we just saw it in x-rays. I do not know whether that wire was taken out later or not because I just saw the patient that one time.

There was one other question that occurred to me. I have recently seen some articles on the use of prontosil and sulphanilamide in gas bacillus infections. Have you had any experience in the use of them in gas bacillus infections?

DR. BABCOCK: No; I have not.

DR. JONES: Many of these proprietary houses send detailed men around to explain the great antiseptic properties of these various things like medicine and so forth. I recently saw an article on work that was done in the University of California, which had a statement that ordinary tincture of iodine was far more antiseptic than any one of them. I would also like the doctor to give us the formula for that Harrington solution.

DR. BABCOCK: The formula for modified Harrington solution which outtests even

tincture of iodine as an antiseptic will be found in the body of the paper.

DR. WILLIAM H. SPEER: I was very much interested in Dr. Babcock's statement that he used Deschler's Salve. That is one thing I have always damned from A to Z, and still do. I was very much interested when you said you used it around the paronychia, Doctor. It has always been my idea that it was very irritating, and my experience is that it has proved so. People will come in with a small infection, a small boil to which they have applied Deschler's Salve, and the whole surrounding area is denuded, and more harm has been apparently done by the application of the salve than the boil has done.

DR. BABCOCK: The lay patient applies Deschler's Salve to a felon and delays operation. I agree with Dr. Speer that is bad treatment. The surgeon incises early and very freely and to stimulate granulations, promote drainage and the separation of sloughs may later use compound resin cerate with great advantage. I have used it mixed with ten per cent of balsam of peru or one per cent of copper acetate for over forty years or ever since Dr. Lewis H. Adler showed me as an intern how much better certain suppurating wounds healed under a cerate dressing than the dressings used by other chiefs. The addition of copper acetate makes a beautiful green ointment and patients, when they see the green color, of course realize that it has a great healing power. The cerate prevents crusting, purulent retention and damage to the advancing epithelial edges, so common with dry or adherent dressings. It is not to be used on eezematous skin, a varicose ulcer of the leg or where there are excessive granulations. It is the simplest form of dressing to be applied by the patient himself after daily hot soaks at home.

For sensitive and superficial wounds I use iodide of bismuth in petrolatum. This is a less macerating, non-irritating dressing and often need not be changed for three or four days. Cut to the exact size of the defect it is useful for varicose ulcers but you should also locate

the large underlying veins by palpation and obliterate them by injection.

DR. W. E. BIRD: Mr. Chairman, I rise merely to ask a question. Did I understand you to say, Dr. Babcock, that the wire used was thirty or thirty-five gauge?

DR. BABCOCK: It varies from eighteen to thirty-six B. and S. gauge: thirty-five for dermal and mucous membrane sutures, thirty-two and thirty for aponeuroses and strong fascias as in hernioplasty. We bury it in the perineum for rectocele, divide the spur and use it in suturing the bowel in the Mikuliez operation, and have been looking for a case of vesico-vaginal fistula or cleft palate that could not be closed with its aid. In one case of rectovaginal fistula there had been 12 previous unsuccessful operations. Eighteen and twenty-gauge is used for the fixation of bone.

DR. BIRD: Eighteen to thirty-five B. and S. gauge. And from whom do you get it—what manufacturer?

DR. BABCOCK: It is manufactured by a number of firms, one of which is the Alloy Metal Wire Company of Moore, Pennsylvania. Nearly all the surgical houses sell it at three hundred to four hundred per cent profit, but even then it is not very expensive.

In a potentially infected wound, we use the wire for all sutures and ligatures. The wire may be buried or will heal in. For example, in the laryngectomies that we do with Dr. Jackson, all the vessels of the neck are tied with wire, and all the sutures are of wire; even the esophagus is united with wire.

PRESIDENT WHITE: I think we are all agreed in thanking the doctor for a most interesting discussion.

SCIENTIFIC EXHIBIT, A. M. A., 1938

Application blanks are now available for space in the Scientific Exhibit at the San Francisco session of the American Medical Association, June 13-17, 1938. The Committee on Scientific Exhibit requires that all applicants fill out the regular forms.

Application blanks may be obtained from the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn street, Chicago, Illinois.

EDITORIAL

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DR. FISHBEIN TELLS THEM

We have just turned off the radio after listening to a notable broadcast, the occasion being the Medical Economics Night of the Philadelphia County Medical Society. Dr. Morris Fishbein, versatile editor of the *Journal of the American Medical Association*, spoke on the subject of "Medicine and the National Policy," and for an hour he talked as only he can talk. He exposed the circumstances under which the now notorious committee of 431 physicians was formed and analyzed their proposals. He explained the details of the venture into state medicine by the Federal Government, wherem the HOLC sets up a new governmental medical machine, which, in our own humble opinion, the courts

will, in due time, upset. Finally, he lashed out at the impudence and the temerity of our social service workers, philanthropic foundations, and government personnel—even as far up as the White House—in their attempts to foist upon the American profession and public a thoroughly un-American system of medical care.

Only by broadcasting—by air, by press, by lecture and pulpit—the whole picture in an intelligent and impartial way can the public be in a position to weigh these many new proposals and to then express its judgment upon them. The medical profession need have no fears as to its future if and when its public knows the facts. Somehow or other we have acquired an abiding faith in the ability of our educated public to find ultimately the right answer to a public problem. As to the problem of adequate medical care, more than half of it is an economic problem that industry, agriculture, etc., must solve; the remainder of the problem can and will be solved by the medical profession, *if it is not interfered with*. Fools rush in where angels fear to tread, and so we do face interference and propaganda, but leave it to the common sense of the American people and these misguided or selfish ingrates will some day find out that they were on the wrong track, when "We, the People, Speak." We hope Dr. Fishbein's address will be published, and that millions may have an opportunity to read it.

The 66th annual meeting of the American Public Health Association, held in New York in October, drew an attendance of 3549, the largest in its history. Among the many resolutions adopted were: a resolution reiterating the attitude of the association toward the removal of public health administration from political interference and control; and a resolution authorizing a special committee to study the public health aspects of medical care, especially of chronic diseases.

Art in psychiatry is new, and among the pioneers in this field is our own Delaware

State Hospital, where an auspicious beginning has already been made. An art class, under a competent instructor, has been formed, in which the students stretch and mount their own canvasses and then proceed to paint. Strange as it sounds, some of these canvasses are really good and indicate a talent that should be developed. Even if no masterpieces ever came from such a group, the work is of material assistance in giving the members of the class a better mental orientation, and therefore serves as a valuable therapeutic procedure. Among the other things in its favor is the fact that after discharge the patients return for further instruction in art; and the fact that it costs no more than any other type of occupational therapy. The final criterion, however, is the fact that it is an excellent aid in linking the patient with his surroundings and the outside world.

The annual report of the president of the Johns Hopkins University just issued shows that the following contributions from Wilmingtonians were received: Mr. H. Fletcher Brown, \$34,200; Alice Belin du Pont Trust, \$1,000; Mr. Irene du Pont, \$16,850; Mr. Harry G. Haskell, \$500. These were donated for research in otology. In addition, the Du Pont Company gave \$750 for the Du Pont Fellowship in Chemistry.

Already plans are in the making for the transportation of the huge attendance that is expected to attend the next A. M. A. convention, in San Francisco, June 13-17, 1938. An all-inclusive tour, in special trains, is being arranged by the American Express Company, leaving Chicago on June 6th, visiting Lamy, Santa Fe, Grand Canyon, Los Angeles, Riverside and Santa Catalina Island, and arriving in San Francisco on the morning of June 13th.

Leaving the convention on the evening of June 17, two routes are available for the return trip. One is via Portland, Seattle, Victoria, Vancouver, Lake Louise, and Banff, and reaches Chicago on June 25th. The other route is via Yellowstone Park, Salt Lake City, Colorado Springs, and Denver, and reaches Chicago on June 27th.

The accommodations will be first class throughout, and the rates reasonable.

PRINCIPLES AND PROPOSALS OF THE COMMITTEE OF PHYSICIANS

(Editorial Note: This is an editorial by one of the signers.)

There has been sent to each member of the State Society a copy of the editorial published in the *Journal of the American Medical Association* November 27, 1937. There has also been sent to the members of the Orleans Parish Medical Society a draft of the Principles and Proposals suggested by a group of 400 odd medical men in this country for presentation before the Parish Society. The members of the State Society are probably fully cognizant by now of the newspaper notoriety which has been obtained by the sending of these Proposals to the lay press and they also know of the unfortunate comments made by some of the blatant newspapers. When released to the papers, the Principles and Proposals were considered by some of the more sensational newspapers in their first printing as a so-called revolt against the American Medical Association. Subsequent editorial consideration apparently changed the point of view because the later comments contained nothing which would lead one to imagine that there was any such thing as a revolt in American medicine. As a matter of fact in the more conservative papers, newspapers which realize and appreciate that the evils of extensive federal control in the activities of the medical profession, or other professions as well, would be harmful to the future of this country, the comments were extremely favorable. In New Orleans, the *Times-Picayune* stated that there was no profession in the world that was receiving such small returns for the tremendous amount of work it did and that there was no profession which is giving gratuitously so much of its time to the poor as the medical profession. In the *New York Herald-Tribune*, in speaking of the doctor, it was written that "the energy that he donates to unpaid patients who cannot pay their bills, the average physician . . . gives more hours a day than the most lavish philanthropist. This condition is unfair. The burden clearly should be shared by others." Statements and comments such as these indicate that the lay press is aware of what the physician is doing for charity, and for nothing.

It was extremely unfortunate that these Proposals were released to the lay press or that the press obtained them before the steps that most of the signers imagined to be taken were taken, namely to submit these Proposals to parish, or county, medical societies or the state societies. This has left a very bad taste in the mouth of many of those who signed the original Proposal. It was distinctly the understanding of many that these so-called Principles and Proposals were to be the basis of discussion in the halls of organized medicine. To have them released prematurely and to be given to the lay press and seized upon by it as a sensational effort against organized medicine has given many of the signers uncomfortable moments. Most of these signers were men who have been interested and active in organized medicine. They represent men who have held and hold positions in the American Medical Association. They are men who have the best interests of organized medicine at heart and to have what they thought was a confidential matter that was to be discussed amongst doctors appearing as it did, was not their idea when the Proposal was signed. On the other hand, there are undoubtedly a few signers who took advantage, at this time and by this method, of bringing out their views which are not those of the great majority of the men on the list of signers.

Naturally, the officers and trustees of the American Medical Association have been deeply hurt by this action which superficially seems to be an attack on the American Medical Association. Such was far from the thought of most of the signers. They did not for a minute think that the American Medical Association would be attacked indirectly by newspapers unfavorable to the medical profession because these matters were to be discussed only by medical men in their meetings. It was obvious that what had been said in these newspapers would be snatched up and grasped by those antagonistic to the American Medical Association as evidence that there was a widespread feeling of discontent among the American medical profession. Such is decidedly not the case. Most of the signers are loyal American Medical Association members and determined protagonists of organized

medicine. Any thinking medical man who would not back organized medicine heart and soul with all his power is a man who is either merely thoughtless, a natural obstructionist or a renegade. It was certainly not in the minds of most the signers to attack the American Medical Association, nor did they think it would be brought into discussion.

Now, a word as to the Proposals themselves. It was pointed out in the Times-Picayune that the P. W. A. worker, the man receiving state and governmental aid, has to pay his grocery bill, has to pay his rent, has to pay for everything and everybody except possibly the social worker who is remunerated by the government, but the doctor receives nothing. The amount of time that the average physician gives to these large numbers of the subsidized proportions of the population is enormous. In New Orleans alone there are over 61,000 unemployed, not including the unemployable. Not only is the doctor asked to see the sick man or woman on relief, but he is called upon to examine the healthy to determine if they are fit to work, to fill out innumerable forms and to spend much time, usually for nothing. Something should be done about this. If these so-called Proposals stimulate the medical profession to go after the rights some good may be accomplished by them. One of the paragraphs of the Principles and Proposals has to do with support of medical education and studies to raise the standards of medical practice. This is one of the so-called Proposals which has been vigorously criticized, but as a matter of fact, the great majority of medical schools in this country are directly supported by public funds and the few that are not are receiving public funds indirectly. Furthermore, another one of the criticisms has been levied at the fact "public funds should be made available to hospitals to render service to the medically indigent." So this is exactly what has recently been done in the State of Louisiana. Our state governmental authorities realize that this is an economic necessity, as it can be seen from the reading matter in the section on Louisiana News issued by the State Hospital Board. Unjustly this Board does not contain a representative of the medical profession.

Attempts are being made to correct this out-and-out unfairness.

It is to be hoped that Parish Societies and the State Society will give thought to these Proposals. They were believed to be, when signed, innocuous generalities and broad statements which would stimulate medical men to demand their rights in so far as intelligent recompensing of the physician would be attained. Let it be understood definitely and positively that these Proposals are not an attack on organized medicine; let it be understood by the critics of organized medicine that never before have medical men been so cohesive and as desirous of standing together as now.—*New Orleans M. & S. Jour.*, January, 1938.

MISUSE OF PUBLIC MONEY

In the November 13 issue of *The New York Medical Week* editorial attention was called to an Associated Press comment that the Home Loan Bank Board had contributed \$20,000 to support a co-operative medical clinic in Washington, to provide medical care for its employees and their families with no salary limit on the membership, and financed partly by government funds. *The New York Medical Week* challenged this misuse of public money.

In the New York Herald-Tribune of December 1, we find a news item from Washington quoting Senator Pat McCarran of Nevada. The article states that he called on officials of the Home Owners' Loan Corporation "to explain on what authority they have contributed \$40,000 of government funds to an experiment in collective medicine." We reproduce in full this news item from the *Herald-Tribune* Bureau in Washington in our "Current Comment" column. Here it suffices to state that Senator McCarran is reported to have said that he understood that the employees of several other departments were contemplating setting up similar systems to that of the H. O. L. C. Senator McCarran warned, "Employees of these departments should realize that they place themselves in grave danger when they exceed their authority and when they dispense government funds without legal authorization."

It is a sad commentary on these times, when the burden of taxation is almost unbearable on those who still have the will and the capacity to earn and save, that totally unauthorized expenditures of public moneys should go on without general public protest and criminal prosecution. There was a time not so long ago when no agencies of the government deliberately misused public money and diverted it from the purposes for which Congress appropriated it. In the same state of the public mind then, such a procedure would have been unthinkable. In the "jog-trotting" of the present day, however, the old order seems passing and public morality and probity seems abating. Medicine never makes complaint against government money—local, state or Federal—expended for medical purposes where organized medicine sees real need; but where "socializers"—defeated in their efforts to receive through regular channels money appropriations for their schemes, are balked, then deliberately take money specifically allocated for other purposes and apply it to the development of pet schemes, then there is presented a situation that needs more than protest.

Three years ago, Dr. Conant, the president of Harvard University, called attention to the dangers to our government from "social leadership" which would wreck our democratic society, because of ignorance, or because it blandly and innocently would "... send to the scrap heap institutions, traditions and even principles which, if they are not absolutely fundamental, are integral parts of the whole fabric of ... our form of civilization"—to accomplish the establishment of their pet schemes.

The law and tradition among us heretofore has been, that Congress shall provide money and determine the scope of its expenditure, and *no one else*. This is one of the fundamentals of our government. Anesthetized, with fears allayed, our citizenry seems strangely apathetic to what is happening to our government.

"Citius venit periculum, cum contemnitur."—*N. Y. St. J. of M.*, Dec. 15, 1937.

SOCIALIZED MEDICINE QUESTIONNAIRE—
FIRST RETURNS

Every mail continues to bring us returns of the questionnaire on socialized medicine which was printed in the October issue. Obviously, accurate figures cannot be given until all returns are in, but an analysis of those received so far is of keen interest.

The answers to the various queries on the questionnaire were given as shown below:

Favoring Compulsory Health Insurance	13.4%
Opposing Compulsory Health Insurance	73.3%
Favoring State Medicine	15.0%
Opposing State Medicine	76.5%
Favoring Hospital Insurance	20.4%
Opposing Hospital Insurance	51.2%
Favoring Some Other Form of Soc. Med.	9.1%
Opposing all forms of Soc. Med.	78.8%
Will accept position under Soc. Med.	20.3%
Will not accept position under Soc. Med.	62.2%
General Practitioners	83.8%
Specialists	14.5%
Practicing Industrial Medicine	1.7%

It will amaze many that 21.2 per cent of the returns have signified a favorable attitude toward socialized medicine. This is more than one out of every five doctors who have taken the trouble to mail a return. Of course, 78.8 per cent is a preponderance against any form of socialized medicine, but the minority are sizable enough to make their voices heard with the present temper of so many of the laity who have become social-conscious.

On the question of hospital insurance, 18 per cent of those opposed to socialized medicine indicated a favorable attitude, while 82 per cent were opposed. Some physicians who are opposed to socialized medicine see no objection to hospital insurance, feeling that it releases money for doctors' bills that is at present used for hospital bills. Most of those opposed to this innovation see in it an enterprising wedge for socialized medicine.

The returns were distributed over the country, as can be seen in the following table:

	% Approving Soc. Med	% Opposed to Soc. Med.
New England	.5	2.4
Middle Atlantic	3.4	11.8
South Atlantic	3.2	10.1
E. N. Central	4.8	19.2
E. S. Central	0.0	4.5
W. N. Central	2.4	11.7
W. S. Central	3.2	11.4
Mountain	1.3	3.2
Pacific	2.4	4.5
Totals	21.2	78.8

In another part of this issue will be found a number of comments which accompanied the questionnaire. Many of the opinions expressed are of interest. Next month there will be a further breakdown of the figures we have since received.—*Med. World*, December, 1937.

NEW YEAR'S RESOLUTIONS

Facing "a critical year" the medical profession in New York State announces its own set of "New Year's resolutions" in an editorial which appeared in the January issue of its official organ, the *New York State Journal of Medicine*.

The resolutions, representing the determination of 16,000 practitioners who are members of the Medical Society of the State of New York, are as follows:

"Organized medicine resolves:

"1. To oppose to the limit of its resources any plan to bring medical practice under the control of a political bureaucracy or to subordinate informed medical judgment to the dictates of lay administrators.

"2. To aid, with more than lip service, any sound plan to bring better medical care within the reach of a larger portion of the population. (It is a sine qua non of any such plan that it must safeguard the professional independence and economic rights of the private practitioner.)

"3. To work for a humane, discriminating system of distributing free and under-rate institutional service, in order to reserve all such facilities for the genuinely needy and prevent the exploitation of medical and civic generosity by those who can pay for private care.

"4. To seek a measure of compensation

for the vast amount of service now rendered free by physicians. With the shrinkage of private practice the profession can no longer carry, alone, a burden which should be borne by the entire community.

"5. To elevate, insofar as possible with present knowledge and means, the standard of medical education and practice, and continue to bring to the public health the unselfish, expert service which has raised the art of healing to its present level."

MISCELLANEOUS

Annual Conference of State Medical Society Secretaries and Editors

Once each year the secretaries of the state medical societies and the editors of state medical societies meet in conference at the American Medical Association headquarters in Chicago. The Michigan State Medical Society was represented at the annual conference, November 19 and 20, by Dr. L. Fernald Foster, secretary; William J. Burns, executive secretary, and Dr. J. H. Dempster, editor of *The Journal of the Michigan State Medical Society*.

The meeting was called to order by Dr. Arthur W. Booth, chairman of the board of trustees of the American Medical Association, who called upon Dr. J. H. J. Upham, president of the American Medical Association, to address the conference. Dr. Upham gave his impressions of medicine gleaned from his official visits during his term as president-elect and as president. The papers presented at the various state meetings were of a high type. The general trend of scientific contributions was excellent. There was noted in some quarters, a lack of organization. He spoke of the economic and scientific phases of medicine as interdependent. He spoke of the old-time doctor, who sent out statements once or twice a year and sometimes not at all. He had been superseded by the more business-like type of doctor who employed an office assistant to look after the business side of his work, which was a great improvement since it enabled the doctor to equip himself professionally for better work. Dr. Upham felt that the time was ripe for state medical societies to employ full-time executives—doctors or qualified laymen—to deal with the matter of organization just as the individual doctor had

come to look to a qualified office assistant to look after the economic side of his practice.

The subject, "Student Health Services: A Challenge to Medical Societies," was discussed by Dr. J. D. Laux of the Bureau of Medical Economics of the American Medical Association. Dr. Laux emphasized the idea that Student Health Departments of Colleges should confine their activities to such subjects as Hygiene and General Health conditions as they affected college life and should not render treatment beyond first aid to individual students. Where the work of the private physician was usurped, the health service was remiss in its duty to the student body as a whole. County medical societies in counties in which colleges were located should assert themselves so as to prevent encroachment on their practice, which includes all sick persons in their community. The attendance upon the sick by doctors employed by colleges raised the question of practice of medicine by corporations. Students should be taught to use the medical services of the community.

Dr. Irvin Abell, president-elect of the American Medical Association, was introduced. He spoke briefly, deploring the fact that groups within the association should address themselves to the public independently. Organized medicine could be articulate only through the American Medical Association and not through any other group, since the American Medical Association was the only organization, democratic inasmuch as its governing body, the House of Delegates, was composed of men selected by state societies all over the United States.

Dr. Olin West referred to the Committee of Physicians, apparently well-financed, who were distributing a set of principles and press releases to the newspapers. (On page 988 of this number of *The Journal of the Michigan State Medical Society* will be found the authorized statement of the Board of Trustees of the A. M. A. on this subject). He went on to speak on the movement in the District of Columbia to furnish medical service to government employees outside the Army and Navy, which had their own medical departments. This service was in vogue also in Denver, Colorado. It was bound to

spread and it was well that every member of the organized medical profession should inform himself of the movement. It began with the inclusion of H. O. L. C. employees, but may include all government employees of any income.

Dr. Walter F. Donaldson of Pittsburgh, the chairman of the conference, introduced the subject of Extension Postgraduate Courses of State Medical Associations. The subject was discussed by Dr. Creighton Barker of New Haven; Dr. T. W. M. Long of North Carolina, and Dr. Holman Taylor of Texas. The burden of the discussion was that every effort should be made to bring postgraduate opportunities as near as possible to the door of physicians in active practice who could find neither time nor money to attend extensive courses at remote medical centers. So far as brought out in the discussion, none of the states had offered greater opportunities than those afforded in Michigan in the well organized set-up under the auspices of the Michigan State Medical Society, not to mention the intensive work of the major county medical societies and specialized groups within them.

Dr. Eben J. Carey of Milwaukee discussed the uses and benefits of exhibits under the auspices of state medical associations. The speaker presented lantern views of the hall in Milwaukee in which exhibits were held which showed capacity crowds in attendance. Discussing the subject, Dr. Olin West emphasized the importance of careful and complete demonstration of the exhibits by competent persons, without which a good exhibit could be ineffective.

Dr. Peter Irving of New York read a paper on the state medical association's part in pneumonia control. He spoke of a large contribution made by the state of New York for the purchase of serum. The chief obstacle to complete and full use was the cost, which amounted to approximately sixty dollars per person. The serum used was prepared from the blood of the horse. Rabbit blood serum would be much cheaper, but had not been found satisfactory.

The evening of November 19 was the occasion of a dinner at the Palmer House for state medical editors. Dr. E. M. Shanklin,

editor of the *Indiana State Medical Journal*, presided. An address on "Better Medical Contributions," was given by Dr. J. H. Dempster, editor of *The Journal of the Michigan State Medical Society*. The paper was discussed by Dr. G. H. Kress of California, Dr. Frank Overton of New Jersey, Dr. Holman Taylor of Texas, Dr. C. A. Smith of Washington, and Dr. Creighton Barker of New Haven. The subject of publication costs was discussed by Senator T. A. Hendricks of Indiana, and Mr. Wm. J. Burns, executive secretary of the Michigan State Medical Society.

Saturday morning, November 20, was devoted to a discussion of a number of subjects pertaining more to the legal and economic side of medicine under the leadership of Dr. W. C. Woodward, director of the Bureau of Legal Medicine and Legislation of the American Medical Association.

The first problem discussed was the subject of malpractice. This brought up the question of employment of the state medical society's counsel in the defense of any of the members of the society threatened with malpractice. A recent decision of the American Bar Association ruled against the practice of law by banking and other corporations such as automobile clubs. Dr. Woodward advised cooperation between special committees such as medical defense of the state societies and local bar associations.

The next subject dealt with the taxation of state medical societies under Federal Revenue acts and social security acts. As of September 17, 1937, a number of state medical societies were declared to come under one or both while approximately an equal number were exempt. The status of a number of medical societies up to the time mentioned had not been determined.—*J. Mich. S. M. S.*, December, 1937.

NATIONAL SOCIAL HYGIENE DAY

"Stamp out Syphilis—Foe of Youth" will be the theme of the Second National Social Hygiene Day to be observed on February 2, 1938.

Of the half-million new cases of syphilis each year, one in five is found among young

men and women under twenty years of age. More startling perhaps is the fact that half of all syphilis infections are contrasted by individuals in the age group of twenty to thirty years, a group which represents only one-fourth of the nation's population.

In line with the youth theme the American Social Hygiene Association is enlisting the interest of those national organizations whose primary concern is with the problems of young people. The American Youth Congress, the General Federation of Women's Clubs, Parent-Teacher organizations, church and "Y" groups, service clubs and many others will be asked to join in special observance of the proposed program.

Many were active during the period of the First National Social Hygiene Day early this year. New cooperating organizations, impressed by the success of that pioneer venture, have come forward voluntarily to share in the task of making the Second Social Hygiene Day an even greater success.

Last February's event resulted in more than 500 conferences and meetings, 135 radio periods and a sweeping flood of newspaper and magazine comment.

Indications point to an even greater national response to the 1938 Social Hygiene Day and all agencies and persons who have at heart the success of the campaign to stamp out syphilis are urged to join in this national endeavor to tell all the people the facts about this enemy of youth and public health, and how it may be conquered.

In addition to preliminary activity for the Second National Social Hygiene Day, the American Social Hygiene Association, through its National Anti-Syphilis Committee, is organizing state and local committees to assist in the appeal for \$500,000 which will enter its general solicitation phase immediately after February 2, 1938.

General John J. Pershing heads the committee, Dr. Ray Lyman Wilbur is vice-chairman, and Charles H. Babcock is chairman of the executive committee. Over two hundred leaders in the professions and business have endorsed this national appeal and have pledged themselves to aid in the fight to "stamp out syphilis."

AMERICAN BOARD OF INTERNAL MEDICINE

The American Board of Internal Medicine will hold its next written examination on Monday, February 14, 1938 in various centers of the United States and Canada.

The examination will consist of two sessions of three hours each with the morning session held at 9 o'clock a. m. and the afternoon session held at 2 o'clock p. m.

The candidates who are successful in this written examination will be eligible to take the practical examination which will be held in San Francisco the Friday and Saturday prior to the opening of the annual session of the American Medical Association in June, 1938.

The final date for filing applications for this written examination is January 15, 1938 and all applications should be in the office of the chairman before that date.

For further particulars and application blanks please address Dr. Walter L. Bierring, M. D., Chairman, American Board of Internal Medicine, Suite 1210, 406 Sixth avenue, Des Moines, Iowa.

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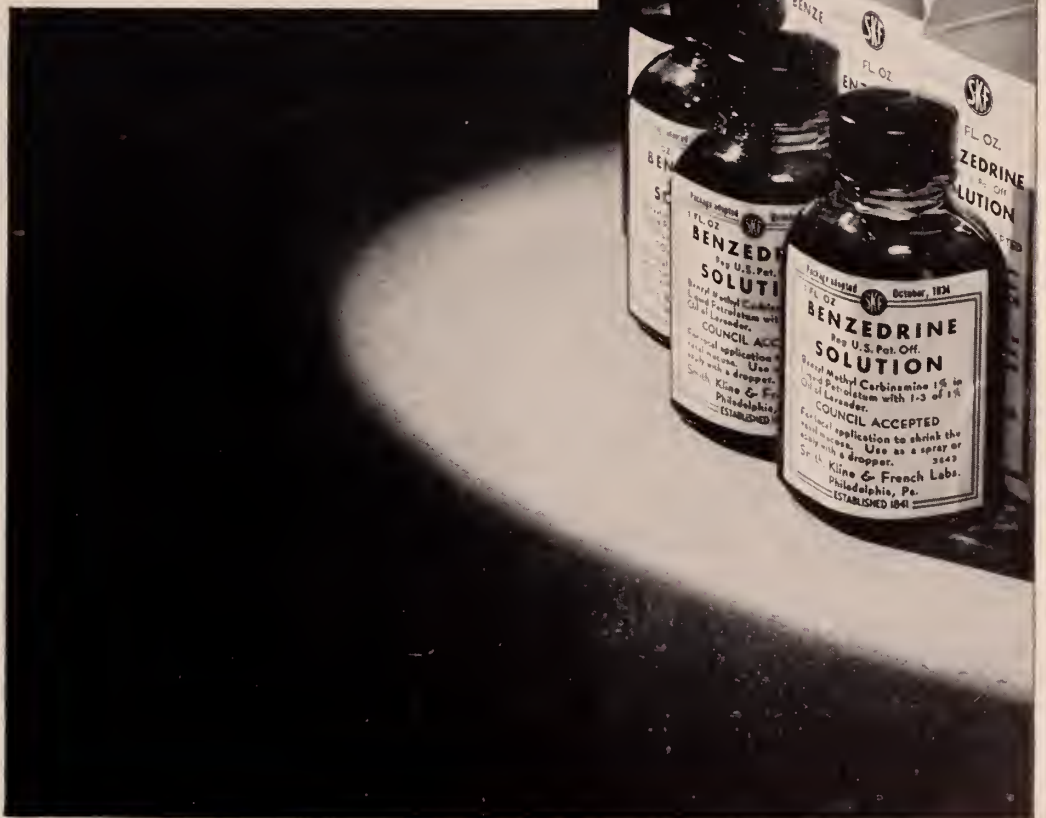
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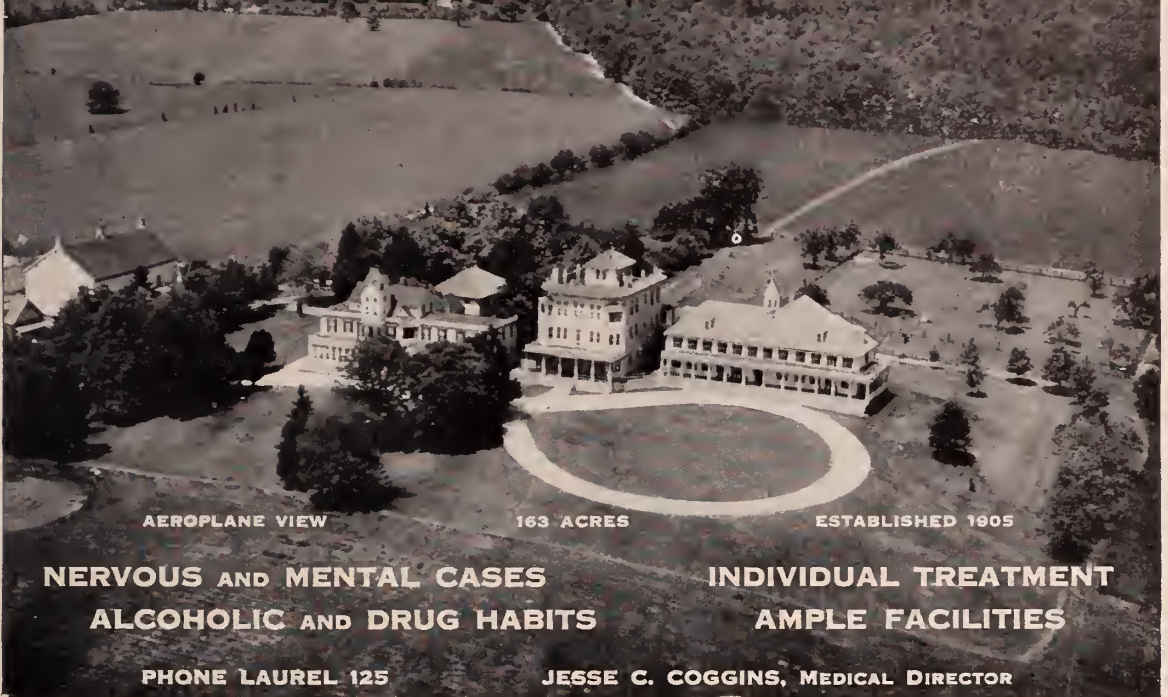
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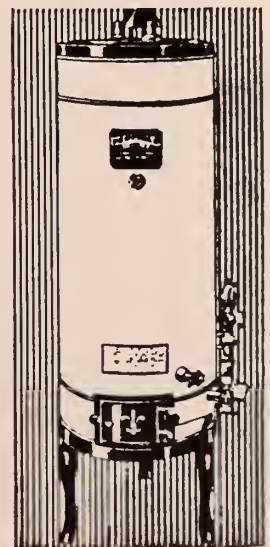
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Are the Neuritic Symptoms of Pregnancy due to deficiency of Vitamins B₁ and G?

SUCH neuritic symptoms of pregnancy as pains in arms and legs, muscle weakness, and paralysis of the extremities may result from a shortage of anti-neuritic vitamins, recent investigations appear to show. Strauss and McDonald report that polynuritis of pregnancy is a dietary deficiency disorder similar to beriberi, responding to treatment with dried brewers' yeast, rich in vitamins B₁ and G. Wechsler, Hirst, Luikart, Gustafson, and other authorities observe that the avitaminosis is probably the result of hyperemesis gravidarum.

Vorhaus and associates, after administering large amounts of vitamin B₁ to 250 patients having various types of neuritis, including that of pregnancy, observed improvement, ranging from partial relief of pain to complete recovery, in about 90 per cent.

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In contrast to the other vitamin deficiencies, cases of severe deprivation of the anti-pellagic factor are not uncommon in certain regions of the United States. It is also known that if the intake of food be drastically restricted for some reason—alcoholism, for example—pellagra may be encountered in localities in which the disease is not endemic (1). For these reasons, it is not unreasonable to suspect that subacute or latent deficiencies of the P-P factor may also be existent in this country.

In the absence of typical dermatitis, available means for the diagnosis of deficiencies of the anti-pellagic factor are not entirely satisfactory. The practitioner must rely upon a variable group of less specific symptoms such as glossitis, diarrhea, digestive

disturbances, and nervous and mental disorders. However, consideration of these symptoms along with an evaluation of the diet upon which the subject had been maintained, may permit the conclusion that suboptimal intake of the P-P factor should be suspected.

The treatment of severe or perhaps even the mild manifestations of this dietary deficiency may require intensive therapy with food products or preparations known to be rich in the pellagra preventing factor. However, prevention of pellagra and maintenance of the cure appear to be largely matters of dietary regulation. In this connection, commercially canned foods deserve particular mention.

Goldberger and his associates directed considerable attention to evaluation of the pellagra-preventive powers of common foods. The values of foods, many of them canned foods, in the prevention of pellagra have been determined (2) by investigations in which human subjects were used.

In view of these facts, it is apparent that certain commercially canned foods will prove reliable, convenient and economical in the formulation of diets calculated to protect against mild or severe deficiencies of the P-P factor.

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1. 1937. J. Am. Med. Assn. 108, 15.
1935. Ibid. 104, 1377.

2. 1934. U. S. Pub. Health Rpts.
49, 755.

This is the thirty-fifth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.



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RAPIDITY OF SHRINKAGE AND IMMEDIATE
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FOLLOWING LOCAL APPLICATIONS OF
EPHEDRINE AND BENZEDRINE

A Comparative Study

JOSEPH A. SCARANO, M.D.
Philadelphia, Pa.

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Reprinted from CLINICAL MEDICINE AND SURGERY, Vol. 1, January, 1937, pp. 25-27.

BENZEDRINE IN PARANASAL SINUSITIS
(A Study of 306 Cases)
By J. ALLAN BERTOLET, M.D.,
Philadelphia, Pa.

Some five years ago I made the first reported clinical use of Benzedrine (benzyl methylcarbinamine), which was, at that time, a new vasoconstrictor of proved potency and with the ad-



Fig. 1.—A sagittal section of a normal

characteristic of volatility. In conjunction with other methods of treatment, beneficial results were obtained in 122 cases presenting various types of complications.

Since that report, studies by other investigators have confirmed these findings and demonstrated further the clinical efficacy of the drug.

When Benzedrine was introduced it seemed reasonable to suppose that its diffusibility as a vapor, it should prove

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THE USE OF BENZYL-METHYL-CARBINAMINE-CARBONATE IN THE TREATMENT OF RHINITIS*

BY HARRY V. BYRNE, M.D.

A NEW drug for the symptomatic treatment of rhinitis has recently been developed. This preparation is a volatile carbonate of benzyl-methyl-carbinamine. The compound is related structurally to both ephedrin and epinephrin with somewhat similar pharmacological and physiological properties. Hartung and Munch, and Piness et al. report a marked rise in the blood pressure following the administration of the drug. The latter investigators state that they have found coincident to the rise in blood pressure an increase in the secretion of the

Reprinted from the Archives of Otolaryngology, May 1935, Vol. 21, pp. 588-590
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A NEW DRUG FOR TREATMENT OF THE EUSTACHIAN TUBE AND MIDDLE EAR, WITH AN APPARATUS FOR ITS USE
EARL LEBOY WOOD, M.D., NEWARK, N. J.

Otolologists have long recognized the value of medicated

and desirability of treating the middle ear with such treatments have been applied locally. This has been done by blowing liquids into the ear or by blowing liquids into the ear which are blown into the

BENZEDRINE VAPOR IN CHILDREN
By JOSEPH A. SCARANO, M.D., AND JOHN F. COPPOLINO, M.D., Philadelphia.

The disadvantages of the usual methods employed in local treatment of upper respiratory infections in infants and children have been noted. The strenuous objection to sprays, tampons or "drops" is often so marked that effective treatment is impossible. Moreover, undesirable secondary reactions often result from use of harsh astringents; and children lipoid pneumonia may result from use of oil inhalants aspirated. It seemed probable, therefore, that a more strictive substance administrable and successfully used in the treatment of logical infections in children would be more convenient than liquids for pediatric convenience, it seemed that the vapor would penetrate

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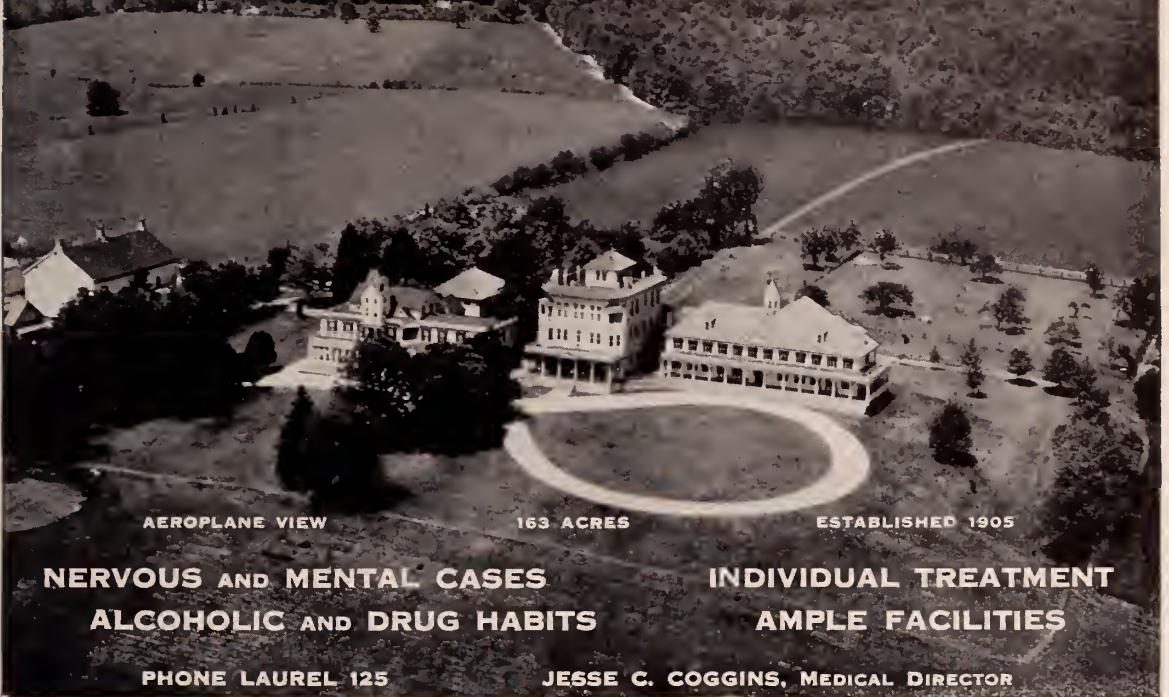
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SOME OF THE MORE UNCOMMON VISCERAL MANIFESTATIONS OF SYPHILIS*

GEORGE MORRIS PIERSOL, M. D.**
Philadelphia, Pa.

As diagnostic methods have improved and our knowledge of syphilis has advanced, attention has been directed more and more to the less obvious visceral manifestations of this disease. Among organs that may be thus involved should be mentioned the lungs, stomach and kidneys. Although lues of these structures is relatively infrequent, it is, nevertheless, of definite clinical importance and its diagnosis may be readily overlooked unless the possibility of its occurrence is kept in mind.

PULMONARY SYPHILIS

Acquired syphilis of the lungs, until recently, was regarded as an exceedingly rare condition. Since the adoption of the Wassermann reaction, cases of alleged pulmonary lues have been more frequently reported. Nevertheless, the disease is not so common as some enthusiastic writers would have us believe, and doubtless, many cases of so-called pulmonary syphilis are in reality but instances in which pulmonary tuberculosis and lues are associated. Nevertheless, there are undoubted instances of acquired syphilis of the lungs.

There are three types of changes seen in acquired pulmonary syphilis. *First*, gummata. These lesions may occur in any portion of the lung but are more common in the lower lobes or about the hilum. They are apt to be multiple and vary in size from a millet seed to a hen's egg. In their earliest stages, pulmonary gummata are grayish red in color, translucent, and are surrounded by areas of conges-

tion and cellular infiltration. Later on, they become more opaque and sometimes slightly caseous. Sooner or later, most gummata become walled off by a dense envelope of connective tissue. Ultimately, in most instances, they become healed and leave behind, dense areas of scar tissues. These scars are indistinguishable from those that result from tuberculosis or other pulmonary lesions. Rarely, gummas break down, empty into a bronchus and leave behind a cavity. *Second*, areas of consolidation and catarrhal inflammation may also result from luetic involvement of the lung. Such lesions are usually found about the roots of the lung or at the bases. They may, however, be found at the apices contrary to general belief. Lewis and Landis reported six cases of pulmonary lues, in which the lesion was apical. It is this type of lesion that is readily confounded with tuberculosis and is difficult to diagnose. A *third* type, is chronic fibrosis. In addition to the fibroid changes which may result from pulmonary gummata, the spirochetes may lodge in the lung and give rise to an inflammatory reaction which consists of extensive cellular infiltration, associated with an overgrowth of connective tissue in the interlobular septa. The blood vessels and alveolar walls become thickened, and finally the involved area is converted into a dense fibrous mass. Clinically, in their fibroid stage, such cases resemble fibrosis from any other cause. Not infrequently, bronchiectasis becomes associated with a fibroid lesion.

The diagnosis of pulmonary syphilis is admittedly difficult and is usually arrived at by exclusion. Cases of this kind are nearly always looked upon as instances of tuberculosis, especially if the lesion happens to be apical. If a patient presents physical signs localized to the root or bases, there is more reason for

* Read before the Medical Society of Delaware, Wilmington, October 12, 1937.

** Professor of Medicine, Graduate School of Medicine, University of Pennsylvania.

suspecting syphilis. In arriving at the diagnosis of pulmonary syphilis, the following criteria are of some value: (1) The patient presents other evidences of lues. (2) The lesion is limited to the root or base of the lung. (3) Repeated and careful sputum examinations carried out over a considerable period of time, must be consistently negative for tubercle bacilli. (4) The Wassermann reaction must be definitely positive. Sometimes, the true nature of a pulmonary lesion is only suspected when the patient fails to improve under the methods of treatment ordinarily useful in tuberculosis, and shows marked improvement under antiluetic treatment. In this connection, it is interesting to recall that certain instances of so-called delayed resolution following pneumonia, have only cleared up under active anti-syphilitic remedies, suggesting that in some of these cases the delayed resolution may in reality be but an evidence of pulmonary syphilis. A final note of caution should, however, be sounded in reference to this diagnosis, because of the prevalence with which both tuberculosis and syphilis may be found in the same individual, and inasmuch as the symptoms and physical signs in both conditions may be identical, errors in diagnosis must be inevitable.

SYPHILIS OF THE STOMACH

Although it is generally recognized that gastric symptoms are exceedingly common in syphilis, it is equally true that actual syphilis of the stomach are uncommon. The frequency of digestive complaints in the course of syphilis has been strikingly shown by the studies of Stokes and Brown who found that among two hundred patients with lues, eighty-seven per cent gave "stomach trouble" as their chief complaint.

There is considerable divergence of opinion as to the frequency with which syphilis of the stomach occurs. Until ten years ago, it was looked upon as a rare condition. During recent years, however, as the result of improved methods of diagnosis, such as the Wassermann reaction, more accurate x-ray examination of the stomach, careful therapeutic tests, and more frequent exploratory laparotomy, the *clinical* diagnosis has been made with considerable frequency. Nevertheless, it must be ad-

mitted that proved instances of the disease are still decidedly uncommon.

Frequency—From a survey of numerous autopsy statistics, one is forced to conclude that the incidence of syphilis of the stomach is low. An admirable critical review of the subject was presented by Hartwell who carefully analyzed two hundred cases that had been previously reported in the literature as syphilis of the stomach. After surveying these cases, he came to the conclusion that in only twenty-seven of them was there adequate evidence to prove the diagnosis. The largest series of cases of proved gastric syphilis that has been reported is that of Eusterman. His observations were based upon ninety-three cases that were studied with extreme care and in whom the evidence of gastric syphilis seemed established beyond reasonable doubt.

Recognition—In many of the cases of gastric syphilis that are being reported, the diagnosis is based upon such uncertain evidence as the association of gastric symptoms with a positive Wassermann reaction and x-ray evidence of disease of the stomach. Before hazarding the diagnosis of gastric syphilis, it should be borne in mind, that gastric lesions of non-specific origin frequently exist in individuals who give a positive Wassermann reaction.

The most positive proof of the existence of syphilis of the stomach is histological and bacteriological. The first histologically-proved case, in which the tissue was removed at operation, was reported by Graham. In a period of six years, Singer and Meyer discovered four cases of histologically-proved gastric syphilis at operation.

The spirochaeta pallida has been found in the wall of the stomach by McNea. The late Aldred Scott Warthin also reported demonstrating the spirochaeta pallida in the tissue obtained from eight cases of syphilis of the stomach that had been operated upon.

The diagnosis of gastric lues, therefore, must rest upon a combination of clinical features, in conjunction with characteristic x-ray findings, a positive Wassermann reaction, a positive therapeutic test and, in those instances in which an exploration is performed, upon histological and bacteriological exam-

inations. TYPES—There are three types of gastric syphilitic lesions described.

1. *Diffuse syphilitic gastritis.* Such a case was described by Flexner.

2. *Syphilitic ulcers.* Most of the cases of syphilis of the stomach that have been reported present the symptoms and other evidences of ulcer. These ulcers may be either solitary or multiple. They may occur in any part of the stomach, but are more frequent around the pylorus. They vary considerably in size and depth. A true syphilitic ulcer of the stomach is the result of a broken-down gumma, which being devitalized because of the obliteration of the blood vessels which supply it, undergoes erosion from the action of the gastric juice. The symptoms of syphilitic ulcer are not distinctive. The chief evidence of the specific character of a gastric ulcer is the readiness with which it responds to anti-syphilitic treatment after the usual measures for the treatment of a gastric ulcer have been carefully tried. Those who have reported cases of so-called syphilitic ulcer of the stomach have depended largely upon this therapeutic test as their diagnosis criterion.

3. *Gastric gumma.* The gumma is in all probability the essential lesion underlying luetic ulcers and cirrhotic changes in the stomach, but the gumma per se as a gastric lesion, is exceedingly uncommon. It is a very rare thing for the diagnosis of gastric gumma during life to be confirmed at autopsy. There are no distinctive symptoms of gumma of the stomach. The cases frequently simulate carcinoma, and the distinction is rendered difficult by the fact that in both conditions the gastric analysis shows an absence of free HCl and often the presence of lactic acid.

Both gumma and syphilitic ulceration may cause a thickening of the pyloric end of the stomach sufficient to produce varying grades of pyloric stenosis. The usual symptoms of pyloric stenosis and gastric dilatation follow in the wake of such a condition.

Sometimes gummatous infiltration of the stomach develops into a condition of fibroid induration. This may be localized in the neighborhood of the pylorus, or it may be diffuse, causing a thickening of the entire gastric wall so that the stomach becomes con-

tracted, distorted and fibrotic. In short, it presents the typical picture of so-called cirrhosis of the stomach, a condition which, as a rule, is nonspecific.

Diagnosis—The clinical features which, when they occur in combination, may be looked upon as of more or less diagnostic value have been enumerated by Hartwell, as follows: (1) Positive Wassermann reaction; (2) a gastric anaecidity or markedly reduced hydrochloric acid content; (3) marked deformity of the stomach roentgenologically, particularly of the "dumb-bell" type, or with an abrupt margin between the healthy and diseased portions of the stomach; (4) less marked cachexia, emaciation and anemia than would be found with such x-ray changes due to lesions other than those of syphilis; (5) improvement under anti-syphilitic treatment. This same author sums up the matter, however, with the statement that there are no characteristic subjective symptoms or objective findings upon which a diagnosis of syphilis of the stomach may soundly rest.

Carman has emphasized eight suggestive x-ray changes. These changes are as follows: (1) Filling defect of the gastric outline, usually without corresponding palpable mass. (2) Shrinkage of gastric capacity. (3) Stiffening and lessened pliability of the gastric wall. (4) Absence of peristalsis from the involved area. (5) Pylorus gaping rather than obstructed. (6) Six-hour retention less common than in other gastric lesions (23%). (7) So-called hour-glass stomach; upper lobe expanded and bulbous; lower one tubular, due to extensive, irregular, concentric contraction. (8) Patient usually under cancer age and not ill in proportion to the extent of disease shown by the x-rays.

Differential Diagnosis—It is evident from what has been said that from the clinical manifestations alone, the diagnosis of gastric lues is by no means easy, and even under the most favorable circumstances, considerable doubt must surround such a diagnosis. It is not surprising, therefore, that gastric syphilis may be easily mistaken for other gastric lesions. Singer and Meyer, in a careful review of gastric syphilis, pointed out the following conditions in which diagnostic confusion may

arise: (1) Cases of gastric syphilis mistaken for carcinoma of the stomach; (2) Gastric syphilis mistaken for nonspecific benign affections of the stomach. A mistaken diagnosis in the first group may be fraught with most serious consequences; when doubt, therefore, exists as to the possible presence of carcinoma, even when syphilis is strongly suspected, early exploratory laparotomy should be performed. In the second group are included such cases as unrecognized perforation of a gastric ulcer producing perigastritis with deformities; strictures of the pylorus due to corrosive poisoning or other inflammatory changes in an individual with a positive Wassermann, and gastric ulcer occurring in knownluetics.

RENAL SYPHILIS

Syphilis of the kidney may manifest itself in congenital syphilis as well as in the course of early or late acquired lues. Some doubt has been expressed as to whether the evidence of nephritis observed not infrequently in syphilitics is due to specific changes in the kidney due to the spirochetes themselves, or merely to coincident renal involvement. Obviously, this is a difficult question to answer, since nephritis due to causes other than lues may occur in syphilitics as well as in non-syphilitic individuals. Furthermore, the vascular changes that occur in late lues may readily bring about changes in the kidney similar in all respects to those due to arteriosclerosis from other causes. There are some who hold that the renal changes observed during the course of lues are the result of the anti-luetic treatment rather than to lues per se. Granted, that in a fair proportion of the cases of nephritis developing inluetics, the renal changes are not due to the spirochetes, there is still sufficient evidence to justify the belief that the *Spirocheta pallida* is capable of inducing characteristic renal lesions and that a true syphilitic nephritis does exist.

Such a contention is supported by the observations of Piessinger and Huber, who showed conclusively that inluetic individuals, spirochetes pass from the kidneys into the urine. Furthermore, Warthin was able to demonstrate by special staining methods that the spirochetes invade the interstitial tissue of the kidney, from whence they pass into the

lumen of the tubules through the tubular epithelium. The invasion of the kidney by the specific organism of syphilis, therefore, cannot be denied and in the light of this, it is not unreasonable to believe that the kidney may suffer definite damage.

Acquired Renal Syphilis—Involvement of the kidney in the secondary state of syphilis is not common. In a small number of cases of early lues, renal irritation is observed. This irritation is similar to the simple nephroses so frequently encountered in other acute infections. The condition is probably due to invasion of the kidney by spirochetes. It is characterized by traces of albumin and occasional casts of red blood cells in the urine. Edema, hypertension, and evidences of disturbed renal function are lacking. Such renal irritation is of short duration, clears up as the acute secondary stage subsides, and probably rarely leaves behind any permanent kidney damage.

Acute Syphilitic Nephritis—A rare but the most characteristic renal lesion of early syphilis is acute syphilitic nephritis. This complication may appear even before the secondary eruption, but it is most commonly observed, according to Stokes, about the fifth month of the infection.

Symptoms—This acute renal process comes on rather suddenly. The urine shows large amounts of albumin, so much that in some cases it may boil solid. Casts are present in considerable number and double refracting lipides have been reported by some observers. Red blood cells are rarely found in the urine. The general health of these patients seems to be little affected, although considerable edema is usually present, associated with a definite anemia. Little elevation of blood pressure occurs and toxic manifestations are rare. The tendency of these cases of acute nephritis with early syphilis is to gradually clear up.

Chronic Renal Syphilis—Until recently, no characteristic lesion of chronic renal syphilis had been described. Within the past few years, a careful study of certain peculiar renal lesions occurring in acquired syphilis has been made by Rich, who found this characteristic renal picture only in syphilitic individuals. It was observed in 6.5 per cent of two hundred consecutive autopsies of patients with syp-

ilitic lesions in organs other than the kidneys. The most outstanding of these associated lesions was syphilitic aortitis. It was also demonstrable in five individuals who had no discoverable luetic lesions in other organs, but in whom the medical history of syphilis, coupled with the positive Wassermann reaction, made the existence of that infection certain.

Pathology—Macroscopically, the kidneys may show little or no change. In practically all instances, however, minute, glistening, grayish-yellow flecks were found scattered beneath the capsules and in the cortex.

The microscopic picture of this lesion which is described by Rich, consists of dense focal accumulations of mononuclear cells in the interstitial tissue, particularly in the cortex. These cell accumulations are irregularly scattered throughout the interstitial tissue, and compress and destroy many of the renal tubules. The inflammatory cells of the interstitial tissue have a tendency to accumulate in spherical nodules which project into the tubules.

Another characteristic feature of this renal picture is the presence of a large number of cholesterol crystals in the lumen of the tubules that lie near these areas of interstitial inflammation; these crystals are responsible for the glistening appearance of the flecks seen on macroscopic examination.

Thus far, all efforts to recognize spirochetes in these characteristic renal lesions have been unsuccessful. It seems quite evident that this renal lesion, described as characteristic of syphilis, is in no way due to anti-syphilitic treatment, since in ten of Rich's cases that showed definite characteristic luetic renal lesions, at no time had there ever been any anti-syphilitic treatment administered.

Symptoms—There is nothing characteristic in the symptoms of this type of chronic renal syphilis. In all cases described by Rich, albuminuria, usually of considerable extent, was present. Casts and white blood cells in varying numbers were the rule. Red blood cells were rarely encountered. The specific Gravity of the urine was not fixed. In practically every instance a definite elevation of urea nitrogen occurred, and in most of the cases,

there was a decided increase in the blood pressure.

DISCUSSION

DR. W. E. BIRD (Wilmington): Mr. Chairman, I would like to ask the doctor just one question. About a week or ten days ago I was shown by an x-ray man here a radiograph which he diagnosed as syphilis of the stomach by the process of exclusion. He asked me if I was willing to concur. He gave me just a word of the history, the details of which I do not recall especially now.

From the marked tubular appearance, I told him that if I were compelled to make but one choice I would say linitis plastica. I would like Dr. Piersol to explain to us if there is a logical differentiation that can be made.

DR. JOSEPH R. BECK (Dover): I would like to ask the doctor one question. Of course, the paper was on diagnosis, and not treatment, but I would like his idea as to the treatment of the average case of, say, an adult between the ages of thirty and fifty years, who comes in with syphilis of the stomach or syphilis of the kidney—what therapeutic regime you would put that patient under.

DR. PIERSOL: In regard to the first question, as I said, in these x-ray diagnoses here of gastric lues, it is difficult for anyone to be very positive. As pointed out by Carman, the tubular rigidity of the stomach, the tubular appearance, is no unusual thing, so that an x-ray man, having a case with a positive Wassermann reaction, and gastric symptoms, and seeing that picture, might very well suspect that he was dealing with syphilis.

As pointed out in one of those x-rays it is true that syphilis does give a diffuse fibrotic condition, but the ordinary chronic diffuse fibrosis of the stomach, which has been seen, has been non-luetic. That is true; that lesion is more apt to be non-luetic than luetic; but it can occur.

As far as I know, there is no difference in the appearance of these two by x-ray, and the only way you could suspect it was with a positive Wassermann or the improvement of the patient under antiluetic treatment.

I want to emphasize again that there is a good deal of speculation about this case of syphilis of the stomach, and a criterion on

which the diagnosis is made is often not very adequate.

Much has been done by exclusion, and often by the therapeutic test. Now, when it comes to the treatment of lues of the various special lesions, that is a pretty big subject. As far as these gastric cases go, granted that they do not have other conditions, they have improved by the ordinary syphilitic treatment, by giving them bismuth or the arsenicals. In addition to that, some of them have been given iodides, and it is particularly true when they have fibrotic lesions, and particularly true when they have syphilitic lesions of the liver. That the iodides seem to have a miraculously good effect, so much so that Dr. Edward Morton, whom you all know, once said that whenever you make a diagnosis of carcinoma of the liver you should never be positive of that diagnosis until you have given the patient the benefit of the doubt by giving him a good dose of mercury and iodine. Sometimes these lesions melt away, much to our joy, but as far as I know, other things being equal, I see no reason why the syphilitic lesions of the liver, the lung, and of the stomach, should not be treated by the ordinary use of some of the modern bismuth preparations intramuscularly, or the arsenicals supplemented with iodine.

Now, when it comes to the renal lesions these renal lesions, as you find them in the acute types, really require no particular antiluetic treatment. They are acute manifestations of an infection, which have a tendency to subside, so that it would probably be a disastrous thing to take an individual who had an acute renal lesion and give him antiluetic treatment very actively, with bismuth or arsenic.

So when these acute lesions exist, I think syphilologists are inclined not to push the antiluetic treatment, because in acute forms they are nothing less than nephroses due to infection, which tend to clear up.

Many people have contended, as I mentioned, that these symptoms that occur in early lues are the result of antiluetic therapy, and, therefore, that indicates the caution that should be used. When it comes to these chronic lesions which Rich described, he has treated

some of those cases by very mild antiluetic treatment. He has not given them arsenic. He has watched them very carefully and been very cautious when he gave them bismuth, and they have been given, under careful control, mercury and iodine.

Apparently, all these renal lesions tend to clear up, and they are of no very serious significance so far as leaving a permanent renal damage is concerned; but no matter where the lesion happens to be you have to watch the kidneys if you are giving them active antiluetic treatment, and that applies to those individuals when they have visceral lesions in other parts of their bodies, or when they have lesions of their kidneys due to syphilis or due to something else, when that is to be taken into account.

So I should say that antiluetic treatment would have to be indulged in very cautiously or not at all in the acute manifestations of renal lues; but in the other visceral lesions the usual procedure, with arsenic, bismuth and iodine, could be followed out.

2031 Locust Street.

THE SYPHILITIC WITH A NEGATIVE WASSERMANN*

FRANK J. EICHENLAUB, M. D.,**

Washington, D. C.

Let me say in the beginning that we will refer to the Wassermann test throughout this paper with the intention of including in that term all the accepted serologic tests for syphilis.

I should like also to define what I mean by latent syphilis. By this term we shall mean that patient who has syphilis as revealed by a clear history of previous symptoms of the disease, previous treatment for an established syphilitic infection, a history of previous positive Wassermann tests, or two or more complete positive Wassermann tests at the time of examination, but who has no clinical evidence of syphilis whatever when examined and has a negative spinal fluid.

The greatest single aid in the diagnosis of syphilis is the positive Wassermann test. Coming from a reliable laboratory a complete positive Wassermann test, especially if con-

* Read before the Delaware Academy of Medicine, Wilmington, December 1, 1937.

** Professor of Dermatology and Syphilology, Georgetown University School of Medicine.

firmed by a second test, must be accepted as indisputable evidence of the presence of syphilis. Aside from yaws, which is rarely encountered in this country; leprosy, which is also uncommon enough to be almost ignored, and possibly, though not probably, a very occasional case of tuberculosis, the test is very reliable and the result must be accepted when positive. In doubtful cases I do advocate always checking with a second specimen to avoid the possibility of clerical error or mixing tests in the laboratory, mistakes which may rarely occur. When these factors of error are ruled out, a positive Wassermann means the patient has syphilis. It does not, of course, mean that the particular symptoms of which the patient complains are due to his syphilis. The syphilitic may of course, also have tuberculosis, cancer or any other disease, and it is the duty of the alert clinician to properly evaluate all the factors in arriving at a diagnosis.

The first stage in which a negative Wassermann may lead to error is in early primary syphilis. From a few hours after inoculation until from ten days to three weeks after the appearance of the primary sore, and occasionally for a longer period, the blood Wassermann will be negative, in spite of the fact that spirochetes are already scattered all over the body. This period in early syphilis, before the Wassermann has become positive, is by far the most favorable from the standpoint of an ultimate cure, and intensive efforts should be made to establish the diagnosis by dark field examination before the Wassermann becomes positive. Every physician who intends to treat syphilis should be able to make a dark field examination himself, or should have available for immediate use someone who can do it for him. At this stage of the disease even a matter of hours may make a difference in the prognosis.

There is one situation in which this phase of the disease is peculiarly important. This is in the selection of donors for transfusion. It goes without saying that Wassermann tests should be done on all donors. Some states have laws requiring professional donors to have Wassermann tests at frequent intervals. In addition one of the rapid serologic tests

should be done on donors immediately before the transfusion, if the emergency is not too great. But even these precautions are not always sufficient, as the following case illustrates.

In one of our Washington hospitals, a patient was given a transfusion. The donor was one of the orderlies who regularly acted as a donor, and who had had a negative serology two weeks prior to the use of his blood. Three weeks after the transfusion our patient developed frank secondary syphilis, with generalized rash, mucous patches, and a positive serology. There was no evidence of a chancre anywhere, and the patient had been ill and in the hospital for too long a period to make exposure to syphilis recently seem possible. Examination of the donor showed no external evidence of syphilis, but the Wassermann was now positive. The only suspicious evidence of syphilis clinically was a small button of induration inside of urethral meatus, and an inguinal adenopathy. It seems probable that the donor was in the seronegative primary stage of syphilis, with an interurethral chancre which even the patient did not know of.

It is obvious that such cases could occur only infrequently. Nevertheless, this donor was in the stage when there were probably actually more spirochetes in his blood than there would be at any other time in the course of his disease. I believe, therefore, that the examination of all donors should include a very careful stripped examination with particular reference to the genitalia and the oral cavity to rule out the presence of an early chancre.

In addition to this precaution, I should like to see someone who does transfusion work look into the possibility of adding to the blood before it is reinjected, a very small amount of neoarsphenamine in all cases.

One-tenth of a gram of neoarsphenamine would probably kill all the spirochetes in a pint or even a quart of blood, and such a small amount of the drug could hardly harm a patient even in shock or seriously ill.

During the secondary period, from the third week after the chancre has developed until the end of the first year, and perhaps for a longer period, the Wassermann is posi-

tive in such a high percentage of cases that one may, for practical purposes, ignore the very rare exception. Personally, I have seen only one case of undoubted secondary syphilis, a negro with a typical annular papular syphiloderma in which the test was consistently negative.

In latent syphilis the occurrence of negative Wassermanns varies a great deal. It is probably as much as 50% of all cases. At this phase of the disease, however, the question is largely academic. If the clinical and laboratory findings are all negative, the patient should not have treatment anyway. He may have cured himself of syphilis or been cured by previous treatment. In any case, one is never justified in treating for syphilis unless the diagnosis can be established, and at such a phase of the disease this may often be impossible.

It is in the later active stages of syphilis that the most serious errors of diagnosis occur because of negative blood Wassermanns. Let us first consider tertiary syphilis, both on the skin and in the viscera. Of course, as a dermatologist, I have seen more of the former type of case, but misdiagnosed visceral syphilis is probably even commoner.

The occurrence of negative blood Wassermanns during active tertiary syphilis is probably as high as 20% of all cases, perhaps higher. In any particular case this failure of the blood test to reveal the disease may be affected by previous treatment. Clinical relapse in cases which have had inadequate early treatment is quite common. However, even in patients who have never had treatment active tertiary syphilis may occur with negative laboratory findings.

The following cases illustrate various types of cases encountered in my own practice. They are selected as typical, and are not by any means all the cases I have seen.

Mrs. E. S. S., white, aged 42, consulted me for a lesion about the left nares. She had had the lesion for 18 months, and for the past four months had been receiving x-ray and radium treatment for epithelioma without improvement. The family physician had taken a blood test, which was negative. The roentgenologist had made a clinical diagnosis of epithelioma

on the basis of the appearance of the lesion and the negative blood findings. The lesion appeared to be a typical circinate nodular dark red non-ulcerative type of syphiloderma. Further inquiry revealed that the patient's first husband had died in an institution, probably from paresis. Her second husband was apparently free of the disease. The lesion healed promptly under antiluetic treatment.

Mrs. E. M. M., white, aged 65, had an eruption of eight years' duration. She stated that over the period of years she had seen six different physicians. Two of these had taken specimens of blood, but evidently these were negative, as she was not treated for syphilis. She presented the most extensive tertiary nodular syphilis I have ever seen. She had numerous round depressed scars and equally numerous round elevated, hard, nodular dark red lesions, grouped and single, in circular and serpiginous form, over the entire back, extensor surfaces of the legs, and flexor surfaces of the arms to the wrists. There must have been several hundred such nodules. She had been treated for psoriasis and eczema and for the usual "acid condition." At the time of my examination the blood was partially positive. The eruption cleared up promptly under proper antisyphilitic treatment.

Miss R. R. P., white, aged 28, had a lesion of eight months' duration over the right eyebrow. Two physicians had treated the lesion by fulguration after the blood Wassermann was negative. The lesion was one by two cm. in diameter, ulcerated in the center from the operative procedures, with red, hard nodules developing about the edge. At this time the Wassermann test was partially positive. The lesion healed promptly under antisyphilitic treatment.

Mrs. A. C. C., white, aged, 65, first consulted her physician eighteen months prior to my examination. At that time she had an ulcer of the tongue, and complained of hoarseness. Her physician suspected syphilis, but the Wassermann test was negative. The tongue lesion slowly healed, but shortly after there appeared an ulcerative hypertrophic lesion on the skin of the forehead between the eyes. She was again sent to the laboratory, where

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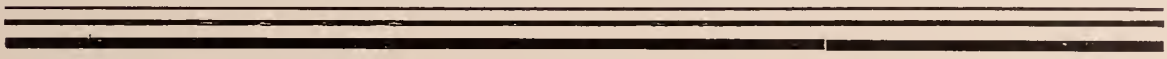
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another Wassermann was negative. At this time the pathologist took a culture from the nose ulcer, recovering among the organisms a streptococcus. A vaccine prepared from this was given the patient twice a week for almost a year, in spite of the fact that the face lesion continued to increase in size. I should like to say, parenthetically, that organisms removed from chronic surface lesions, especially ulcers, usually have little etiologic significance, and, in my experience, vaccines prepared from them are worthless.

At this time we saw the patient. She presented an elevated nodulo-ulcerative tertiary syphilerma about three inches in diameter in the center of the forehead and involving both upper eyelids. She had a typical cobblestone tongue. There were deep pitted scars in front of the left clavicle where lesions similar to, but smaller than, the one on the face had healed, with one small active nodule still present, and the patient was still hoarse.

The physician was advised to start anti-syphilitic treatment, but still did not want to do so because of the negative Wassermann. Fortunately blood taken at this time and sent to two different laboratories was completely positive.

From these illustrations it will be seen that tertiary cutaneous syphilis is often accompanied by a negative Wassermann. Fortunately, the clinical picture of tertiary syphilis on the skin is, in most cases, so typical that the diagnosis can be made in spite of negative laboratory findings.

The patient who has tertiary syphilis of some viscus and a negative Wassermann is often a much more difficult problem. Syphilis can assume the clinical picture of so many different clinical entities that correct diagnosis is difficult and, at times impossible without laboratory aid. Some of the difficulties are illustrated by the following case:

Mr. C. D., white, aged 48, consulted his physician complaining of indigestion and upper abdominal discomfort. He was hospitalized, and a careful study made. The routine Wassermann was negative, and it was decided that his trouble was probably chronic cholecystitis. At operation several nodules were found in the liver. The surgeon believed these to be

gummata, and a piece of one was excised and the patient closed without further operative procedure. The microscopic section showed typical syphilis. The Wassermann was again taken, and was now partially positive. Under bismuth injections and iodides by mouth, the patient's symptoms soon cleared up. I have followed this man for years since the operation, using no arsenicals. He is still symptom free, although his Wassermann has never reverted to negative again.

In this case it is obvious that a preoperative diagnosis would have been practically impossible. Solitary gummata, even of considerable size, do not, as a rule, give rise to symptoms or signs of disturbance when located in the liver. A number of such lesions may be present, and not disturb the function of the liver. It is only when a diffuse involvement causes hypertrophic cirrhosis that one can suspect liver syphilis, unless the Wassermann test, or the history help in the diagnosis.

Mr. A. C., white, aged 55, was seen at one of our hospitals complaining of loss of strength and indigestion. Careful general examination showed an enlarged liver and a secondary anemia. The Wassermann was negative.

Treatment given at the hospital failed to affect his symptoms. He then consulted another internist. In addition to the enlarged liver, this physician also found evidence of early aortitis. A combination of aortitis and hypertrophic cirrhosis was so suggestive of syphilis that Wassermans were done at two different laboratories. One reported negative findings, the other partial positive.

This man was not an alcoholic, and there was no history of rheumatism, nor was there hypertension, to account for the aortitis. His physician and I concluded that in the absence of any other explanation, such a combination could only be accounted for by syphilis. He was given injections of bismuth, and potassium iodide by mouth. The size of his liver has not changed. However, his aortic signs have disappeared, his subjective symptoms have improved, and after four years, he is comparatively well and still able to carry on his work. His Wassermann still fluctuates between negative and partially positive.

It will be noted that neither of these cases received any arsenic. It seems generally to be

accepted that patients with syphilis of the liver do better if more of the arsenicals are used.

Similar cases occur frequently in other forms of tertiary visceral syphilis. In patients with aortitis, and even with aneurysm, the Wassermann may be negative. Aneurysm, and especially aneurysm of the aorta or larger vessels of the thorax and abdominal cavity, is probably always due to syphilis. Nevertheless, especially if previous treatment has been given, the Wassermann may be negative. One of the commonest causes of aortitis is syphilis. In patients under fifty, with no clear rheumatic history and no evidence of hypertension, the presence aortitis is strongly suggestive of syphilis, and the fact that the Wassermann test is negative should not be allowed to rule the possibility out. The same line of reasoning should be applied to cases of tumor of the stomach and of the rectum. Syphilis of these organs will often closely simulate carcinoma, and if there is any reason to suspect syphilis the occurrence of a negative Wassermann should not rule out this diagnosis.

In general, treatment for syphilis before a definite diagnosis is made is not recommended. But in obscure cases of tertiary syphilis where one must have a method of ruling out the disease, the therapeutic test should be applied. This is especially true where the alternative may be radical surgery or intensive x-ray treatment.

Finally, there is the problem of neurosyphilis, perhaps the most important of all. In a frank case of general paresis before any treatment has been given, the blood Wassermann is usually positive. In any other form of neurosyphilis, the blood Wassermann is frequently negative, especially if there has been previous treatment, but even in cases where no treatment has been given.

Neurosyphilis can simulate so many important medical and surgical diseases of the thorax and abdomen, that its correct diagnosis is especially important. It can irritate almost all of the psychoses also. Among the common conditions with which neurosyphilis may be confused are angina pectoris, and acute surgical abdominal disease, such as cholelithiasis, gastric ulcer, and kidney stone. The following case is illustrative:

A. B., white, male, aged about 40, gave the following history:

He had had a chancre about twenty years ago, treated locally and with medicine by mouth. Five years ago he began to have abdominal pain. This pain came on at irregular intervals, but was always severe, the attacks lasting for several hours. In the interval between the onset of his symptoms and our examination he had had three abdominal operations, one to remove the appendix, one for gall bladder disease, and one for gastric ulcer. At each of his hospital admissions a blood Wassermann was negative and no further thought of syphilis occurred. I do not know whether any pathology was found at operation, but in any case, the patient's attacks continued. When we examined the patient there were unequal pupils, one of which was fixed, unequal and exaggerated, deep reflexes of the extremities, and an absence of the abdominal reflex on one side. The blood Wassermann was negative; the spinal fluid, positive. His attacks were much less frequent after six months' treatment. This case occurred some years ago. In the present syphilis-conscious state of the profession, such a frank case of neurosyphilis would probably not be overlooked. In many cases, however, the symptoms precede the signs by many months or years. The blood Wassermann is so frequently negative or inconclusive in all forms of neurosyphilis that the necessity of spinal puncture to definitely establish the diagnosis cannot be too much emphasized. In neurosyphilis the spinal fluid is positive in such a large percentage of the cases, either in the cell count, globulin, Wassermann, or colloidal gold curve, that an entirely negative fluid almost excludes neurosyphilis. I say almost, because I have seen a few cases of undoubted neurosyphilis, especially paresis, with negative findings. But all these cases had had large amounts of treatment.

Before leaving this phase of the subject I wish again to emphasize the necessity of exercising clinical judgment. I am perfectly aware that a neurosyphilitic can have abdominal attacks of pain due to appendicitis or any other real organic disease. Indeed, at the present minute I have under treatment a tabetic who developed attacks of vertigo which

we found were due to angina pectoris, and apparently not related, at least directly, to his syphilis. I am only asking that you remember the possibility of neurosyphilis in all these cases, and that you do not rely on the blood Wassermann alone to exclude it.

SUMMARY

This paper is an effort to bring to your attention some of the phases of syphilis in which a negative blood Wassermann may lead to an error in diagnosis. Cases have been quoted to show the possibility of this error in early primary syphilis, in tertiary skin and visceral syphilis, and in neurosyphilis.

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The annual election of the Academy was held on January 25, 1938. Most of the officers and committeemen are elected biennially, but the following were elected this year: Board of Directors, A. L. Bailey; Library Committee, R. O. Y. Warren, M. D.; Admission Committee, J. M. Barsky, M. D.; Scientific Committee, J. M. Messiek, M. D., and J. P. Wintrup, D. D. S.; Executive Committee, C. E. Wagner, M. D., and D. J. Casey, D. D. S. Dr. O. S. Allen was appointed chairman of the House Committee.

Recent additions to the Library are as follows: Alexander, Collapse Therapy of Pulmonary Tuberculosis; Blair and Ivy, Oral Surgery; Carrell, Man, the Unknown; Clendening, Modern Methods of Treatment; Cushny, Pharmacology and Therapeutics; Duke-Elder, Ophthalmology; Durfee, To Drink or Not to Drink; Flexner, Doctors on Horseback; Gibson, Dr. Bodo Otto and the Medical Background of the American Revolution; Gray, Anatomy of the Human Body; Grinker, Neurology; Heiser, An American Doctor's Odyssey; Hertzler, Technic of Local Anesthesia; Horsley and Bigger, Operative Surgery; Joslin et al., Treatment of Diabetes Mellitus; Landsteiner, Specificity of Serological Reaction; Johnson, Child Psychology; Osgood and Ashworth, Atlas of Hematology; Packard, History of Medicine in the United States; Phelps and Kiphuth, Diagnosis and Treatment of Postural Defects; Pusey, A Doctor of the 1870's and '80's; Rowlands and Turner, Operations of Surgery; Sadler,

Theory and Practice of Psychiatry; Stimson, Common Contagious Diseases; Thornton, Medical Formulary; Titus, Management of Obstetric Diseases.

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It is hoped that hospitals, municipal and other laboratories and physicians will provide technicians with an opportunity for attending the Institute for part or all of its sessions.

American Board of Obstetrics and Gynecology

The next examination (written and review of case histories) for Group B candidates who have filed applications will be held in various cities of the United States and Canada, on Saturday, February 5, 1938.

The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire board, meeting in San Francisco, California, on June 13 and 14, 1938, immediately prior to the meeting of the American Medical Association.

Applications for admission to the June, 1938 Group A examinations must be on an official application form and filed in the Secretary's Office before April 1, 1938.

For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pa.

EDITORIAL

DELAWARE STATE MEDICAL JOURNAL

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Reprints of original articles will be supplied at actual cost, provided request for them is attached to manuscripts or made in sufficient time before publication.

All correspondence regarding editorial matters, articles, book reviews, etc., should be addressed to the Editor. All correspondence regarding advertisements, rates, etc., should be addressed to the Business Manager.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

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VOL. X FEBRUARY, 1938 No. 2

THE DISTINGUISHED SERVICE MEDAL

In the House of Delegates of the American Medical Association during the Kansas City session in 1936, Dr. Harrison H. Shoulders of Tennessee submitted a resolution for the development of a plan whereby suitable recognition in the form of a medal or a testimonial might be given to fellows of the Association who have rendered distinguished service in the science of medicine. The committee appointed by the speaker of the House of Delegates recommended certain amendments to the By-Laws of the Association, which were adopted at the session in Atlantic City in 1937. In accordance with this action, a special committee, known as the Committee on Distinguished Service Awards of the American

Medical Association, consisting of five members, was immediately established. The first committee includes: Drs. H. H. Shoulders, Tennessee; J. W. Amesse, Colorado; J. D. Brook, Michigan; J. F. Hassig, Kansas, and Grant C. Madill, New York. This committee is authorized to receive nominations for the award, which is to be given on the basis of meritorious service in the art and science of medicine. The award is to include a distinguished service medal and a citation.

One Fellow of the American Medical Association will be eligible to receive the award each year. The nominations which come to the Committee on Distinguished Service Awards are considered by them and from these nominations five names are selected, which are submitted to the Board of Trustees. The Board of Trustees, after its consideration of these five, selects not more than three, and these three are submitted in ballot to the House of Delegates by the Board of Trustees. The House of Delegates then selects the recipient of the award from the list of nominees submitted by the Board of Trustees.

The intricate method of selection has been planned definitely to eliminate any type of lobbying or pressure in the selection of the distinguished physician who is to be honored. It is understood that the Board of Trustees will submit its first three candidates on a ballot to the House of Delegates at its first session on Monday morning, June 13, in San Francisco. The medal will be awarded to the recipient at the open general meeting, at which the President is inaugurated and before which he delivers his address on Tuesday evening, June 14. In order to select a suitable recipient for the distinguished service medal and the citation for the session of 1938, it is desirable that those wishing to make nominations send at once to the Secretary of the American Medical Association, Dr. Olin West, 535 North Dearborn Street, Chicago, the names of those whom they wish to place in nomination for this high honor, accompanied in each instance by the record of achievements of the person concerned.

Editorial, *Jour. A. M. A.*, Feb. 12, 1938.

BOOK REVIEWS

Macleod's Physiology in Modern Medicine. Eighth edition. Edited by Philip Bard, Professor of Physiology, Johns Hopkins, with the collaboration of eight authors. Pp. 1051, with 355 illustrations and 103 tables. Cloth. Price, \$8.50. St. Louis: C. V. Mosby Company, 1938.

The preface to this new edition of what has become a classic states the situation so well that we quote: "The seventh edition of this book appeared only a short while before the untimely death of Professor Macleod. Since then there has elapsed one of those brief periods which apparently suffice to antiquate any textbook of physiology. . . . Little of the seventh edition remains." Yet it has been only three years since the seventh edition, which only points to the fact that physiology, along with chemistry, is one of the rapidly advancing sciences.

This is not the place for a lengthy or critical review of such a work; suffice it to say, however, that the present edition fully maintains its position among the foremost texts in any language.

Proceedings of the 31st Annual Convention of the Association of Life Insurance Presidents. Paper. Pp. 254. New York: 165 Broadway, 1937.

This is a valuable collection of papers on actuarial, economic, and health matters of interest to those engaged in insurance work, which can be read with profit by the physician, especially the papers of Drs. Thomas Parran and Alexis Carvel.

Rex Income Tax Record for Professional Men. Second. Pp. 130. Fabricoid. Price, \$3.50. Detroit: Rex Income Tax Recording Company, 1935.

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The Baby's First Two Years. By Richard M. Smith, M. D., Assistant Professor of Pediatrics and Child Hygiene, Harvard Medical School and School of Public Health. Fourth

Edition. Pp. 121, with 20 illustrations. Cloth. Price, \$1.75. Boston: Houghton Mifflin Company, 1937.

This book is divided into three parts, as follows: (1) the care and feeding of infants, (2) suggestions to mothers, and (3) recipes and charts. It contains a great deal of valuable information for mothers, and the illustrations are excellent. It is conservative and concise in its presentation of subject matter.

Crippled Children: Their Treatment and Orthopedic Nursing. By Earl D. McBride, M. D., Assistant Professor of Orthopedic Surgery, University of Oklahoma; and Winifred R. Sink, R. N., Educational Director, Grace Hospital School of Nursing, Detroit. Second Edition. Pp. 379, with 195 illustrations. Cloth. Price, \$3.50. St. Louis: C. V. Mosby Company, 1937.

This second edition is an outstanding book, and is an excellent one for general use. It gives a sufficient knowledge of each subject to guide general practitioners in orthopedic problems, but it is expressly written for nurses.

It is well worth its cost from both the standpoint of equipping an orthopedic service, and as a textbook for nurses.

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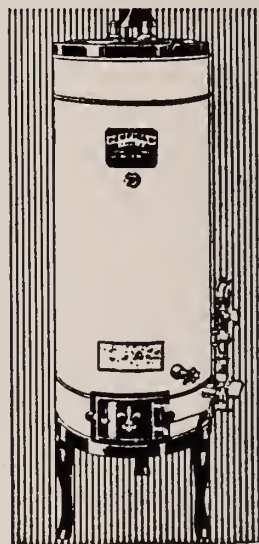
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DELAWARE STATE MEDICAL JOURNAL

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HIS FIRST SOLID FOOD

The baby's first solid food always excites the parents' interest. Will he cry? Will he try to swallow the spoon? Far more important than the child's "cute" reactions is the fact that figuratively and physiologically this little fellow is just beginning to eat like a man.



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BASIC OPERATIONS IN COMMERCIAL CANNING PROCEDURES

I. CLEANSING OPERATIONS

● As reference to a recent text on canning will disclose (1) the details of commercial canning procedures will vary from product to product. There are, however, certain basic operations which are included in practically all canning procedures. In the belief that they may prove of interest, it is our intention to describe in broad detail the nature and purposes of these essential operations.

One of the first and most important steps in commercial canning is the thorough cleansing of the raw food material received at the cannery. The purpose of such an operation is, of course, immediately evident, namely, to remove soil, dirt or other inedible substances which may be present. However, cleaning also serves to reduce substantially the load of spoilage bacteria with which Nature usually endows raw foods.

Commercially, cleansing is effected in a variety of ways. In general, however, water washers specifically designed for the various types of products are used. In these machines, the raw food material is subjected to high-pressure sprays or strong flowing streams of potable water while passing along a moving belt or while being tumbled by agitating or revolving screens. Sometimes a "flotation" type of washer is also used to remove chaff or similar material. With cer-

tain products, water washing is preceded by a "dry" cleaning treatment in which adhering soil and dirt is mechanically removed from the food by revolving or agitating screens, or by strong air-blasts.

Also, in certain canning procedures, operations whose basic functions are not primarily to clean the raw material may also exert a cleansing effect. Thus, the "blanch" or scalding treatment accorded many products serves to clean the food, as does the water spray sometimes applied to foods after the blanch.

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- (1) 1937 *Appertizing or The Art of Canning*, A. W. Bitting, The Trade Pressroom, San Francisco. (2) *Preventive Medicine and Hygiene*, M. J. Rosenau, Appleton-Century Co., New York.

This is the thirty-third in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.



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VOLATILE VASOCONSTRICTOR HAS
PROVED OF PARTICULAR VALUE
A PRELIMINARY REPORT
LOUIS D. SULMAN, M.D.
PHILADELPHIA, PA.
Throat Departments,
Mercersburg Hospital.

RAPIDITY OF SHRINKAGE AND IMMEDIATE
AND SECONDARY REACTIONS
FOLLOWING LOCAL APPLICATIONS OF
EPHEDRINE AND BENZEDRINE

A Comparative Study

JOSEPH A. SCARANO, M.D.

Reprinted from CLINICAL MEDICINE AND SURGERY, V.
JANUARY, 1937, pp. 25-27.

BENZEDRINE IN PARANASAL SINUSITIS
(A Study of 306 Cases)
By J. ALLAN BERTOLET, M.D.
Philadelphia, Pa.

Some five years ago I made the first reported
clinical use of Benzedrine (benzyl methyl
carbinamine),¹ which was, at that time, a new
vasoconstrictor of proved potency and with the ad-



FIG. 1.—A sagittal section of a normal

characteristic of volatility. In conjunction
with other methods of treatment, beneficial results
in 122 cases presenting various types
of complications.

Since that report, studies by other
investigators^{2, 3, 4, 5} have confirmed these findings
and demonstrated further the clinical efficacy
of the drug.

When Benzedrine was introduced
it seemed reasonable to suppose that its
diffusibility as a vapor, it should penetrate
more readily than liquids for pediatric
convenience, it seems that the vapor would penetrate

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so rapidly achieved
the extensive medi-
cal background of
'Benzedrine Inhaler'

BENZEDRINE VAPOR IN
CHILDREN

By JOSEPH A. SCARANO, M.D., AND
JOHN F. COPPOLINO, M.D.
Philadelphia

The disadvantages of the usual
methods employed in local treatment of upper
respiratory tract infections in infants and children
have been noted. The strenuous object
of treatment by sprays, tampons or "drops" is
often so marked that effective treatment is
impossible. Moreover, undesirable
and secondary reactions often result
from the use of harsh astringents; and
children lipid pneumonia may result
from the use of oil inhalants aspirated
into the lungs. It seemed probable, therefore,
that a volatile vasoconstrictive substance
administered in the form of a vapor would be
more convenient and effective than liquids for
pediatric convenience, it seems that the vapor would penetrate

Reprinted from the New England Journal of Medicine
Vol. 209, No. 21, pp 1048-1051, Nov. 21, 1932

THE USE OF BENZYL-METHYL
CARBINAMINE CARBONATE IN
THE TREATMENT OF
RHINITIS*

BY HARRY V. DYRNE, M.D.

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of rhinitis has recently been developed.
This preparation is a volatile carbonate
of benzyl-methyl-carbinamine. The compound
is related structurally to both ephedrin and
epinephrin with somewhat similar pharmacological
and physiological properties. Hartung and
Munch¹, and Piness et al² report a marked
reduction in the blood pressure following the administration
of the drug. The latter investigators state
that their observations are coincident with the
observation of others that the administration of
these drugs causes a decrease in the volume of the
secretions of the mucous membranes.

Reprinted from the Archives of Otolaryngology
May 1935, Vol. 21, pp. 588-590
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A NEW DRUG FOR TREATMENT OF THE EUSTACHIAN
TUBE AND MIDDLE EAR, WITH AN
APPARATUS FOR ITS USE
EARL LEROY WOOD, M.D., NEWARK, N. J.

Otolologists have long recognized the
importance of the eustachian tube in
mechanical

and desirability of treating the
middle ear with such treatments have been
applied locally. This has
been done by blowing liquids into
the ear, or by blowing liquids into
the ear, which are blown into the

THE GROSS CHANGES PRODUCED IN THE NASAL
TURBINATES BY BENZEDRINE INHALATION

An Analysis of One Hundred Cases

BENZYL METHYL CARBINAMINE
(BENZEDRINE)

A Study of the Rapidity and Duration of
Its Shrinking Action in the Nasal
Turbinates

BENZEDRINE INHALER

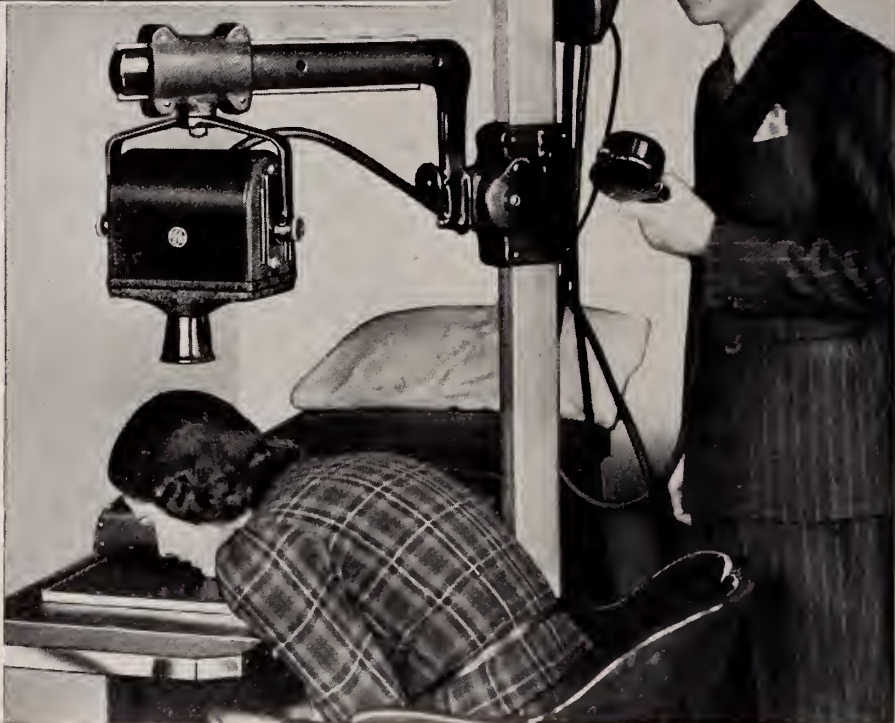
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**Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245
Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154
N. Y. State Jour. Med., June 1935, Vol. 35, No. 11
Arch. Otolaryngology, Mar. 1936, Vol. 23, No. 3
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60*

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THE IMPORTANCE OF OCULAR EXAMINATIONS AFTER THE FOURTH DECADE OF LIFE*

WILLIAM ZENTMAYER, M. D.**
Philadelphia, Pa.

In selecting a subject from so specialized a field of medicine as ophthalmology to present before a general medical body which has in its membership a number of distinguished eye physicians, the essayist must choose a subject which, while addressed to the larger number, may still have some interest for the ophthalmologist. I hope I may not altogether fail in my endeavor to meet these requirements.

In the earlier decades of life the eye, like other organs of the body, is subject especially to acute inflammatory conditions. As such affections are usually accompanied by pain, redness, and at times rapid lowering of the vision the person so affected is conscious of his trouble and at once seeks advice. After the fourth decade, however, frank inflammatory conditions are less frequent, but insidious inflammations and degenerations which are frequently without subjective symptoms are more common and creep on unnoted by the patient. Hence the necessity for ophthalmoscopic examination at this time of life.

Perhaps nowhere else in the body are conditions more favorable for the observation of pathology in the living tissues than in the interior of the eye. Here, with the ophthalmoscope, we see under considerable magnification a transparent sheet of nerve and connective tissue, the retina; overlying but not hiding a structure almost entirely composed of blood vessels, the choroid. The slightest alteration in the transparency of the retina, the result of edema, exudation, coagulation-necrosis of the ganglion cells, or hemorrhages,

becomes apparent at once; and in the choroid, sclerosis, atrophy of the vessels, and hemorrhages are plainly visible. The vessels of the retina and choroid are subject to the same changes as vessels elsewhere in the body and we easily recognize with the ophthalmoscope spasm of the vessels, embolism, thrombosis, aneurism, periphlebitis, periarteritis, endarteritis, angiosclerosis, and changes in the quantity and quality of the blood contained in the vessels, especially polycythemia, anemia, hyperemia, pernicious anemia, and lipemia retinalis (Jackson). In this category are mentioned only conditions which, with one or two exceptions, occur with greater frequency after middle life, so as to emphasize the importance of an ophthalmological examination at this period.

One of the annoying tell-tale effects of increasing years is a lessening of the power of altering the focus of the eye which enables one to see at reading distance as well as at far distance. The annoyance caused by this change comes earlier to the far-sighted and in general later to the near-sighted, than to one who has a normal focussed eye for distance.

The ability to alter the focus of the eye for varying distances is called the accommodation of the eye. It is brought about by the power of the reading muscle to change the shape of the lens, contained within the eye, which in early life is soft and plastic. With age the muscle action weakens, the nerve innervation to the muscle lessens, and the lens substance and capsule become more rigid so that the change in the focus cannot be fully effected. These changes are so constant that at about the age of 45, unless the eye be near-sighted, it is no longer possible to accommodate the eye in order to enable one to read ordinary print at a convenient distance without effort and fatigue. This is called presbyopia or old sight. Patients will at times tell with con-

* Read before the Medical Society of Delaware, Wilmington, October 13, 1937.

** Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania.

siderable pride of the remarkably "strong eyes" of a parent who at an advanced age was able to lay aside glasses and read with the naked eye, little realizing that this supposed proof of "strong eyes" is quite the contrary and is but an evidence of beginning cataract. In most cases the first stage in the development of cataract is one of swelling of the lens which causes the eye to become near-sighted.

As the fourth decade is the time of life when more serious changes occur in the eye itself and when a careful examination of the inside of the eye may reveal the existence elsewhere in the body of organic diseases, one should consult a physician specializing in diseases of the eye to obtain the proper reading glass so that he may take the opportunity at the same time of having a thorough examination made of the eyes.

While cataract must in most instances be looked upon as a local disease, yet the fact that it is unusual for it to develop before the fifth decade shows that age is a strong contributing factor and we usually speak of this type as senile cataract as though it were just as much an accompaniment of old age as gray hairs, brittle nails, etc.

Cataract is a loss of transparency of the crystalline lens. This may begin in the periphery of the lens in localized areas and not interfere with the vision for years, or it may begin in the centre of the lens and early in its development interfere with the vision. The former type is the more common. It always affects both eyes but does not as a rule develop at the same rate in both, so that one eye is usually ready for operation while the other still retains some sight. It is no longer considered necessary to await the maturity of the cataract before operating. The cataract should be removed as soon as the patient is incapacitated for his life work. If the patient is advanced in years the extracapsular operation may be done but if the patient is in the earlier decades of life the intracapsular method is preferable.

If cataract is detected in its early stage can it be absorbed or held in check? As yet we have no means of bringing about its absorption, but attention to the hygiene of the eye, to the general physical condition, to diet, and

to the wearing of proper glasses may have some retarding effect on its advance.

Cataract sometimes develops as a complication of diabetes. It is always bilateral and develops usually earlier in life than the senile type. The cause is not known, but it is not due to the presence of sugar in the aqueous.

Dinitrophenol may produce cataract and many cases of cataract have resulted from the indiscriminate use of this chemical for the purpose of reducing weight. As it occurs at about the same age period as diabetic cataract, it is well to have this cause in mind when a patient has cataract of rapid development. It may be of interest to you to know that while post-operative complications are more frequent in diabetic cataract, the prognosis is, on the whole, favorable. Especially is this so since the use of insulin.

Of all diseases of the eye the one most dreaded is glaucoma. This is usually described to the laity as a "hardening of the eyeball." What it really is is an increase in the hydrostatic or fluid pressure of the eye. If you press the normal eyeball with your fingers you have a sense of its dimpling. As the inward tension increases it requires more and more pressure of the fingers to accomplish this, and in severe cases of glaucoma it cannot be done at all. In other words the eye has become "stony hard." The tonometer is used for a quantitative estimation of the intraocular tension.

In general terms it may be stated that the reason for the increase in the internal fluid pressure of the eye is that there is some obstruction to the outflow of those fluids which are normally formed within the eye to nourish it and also keep it spherical shape.

Glaucoma is preeminently a disease of old age. The incidence increases with each decade, but the disease is rare before the fifth. It occurs in an acute and chronic form, but it is only with the latter that we are here concerned. So insidious is this form of the disease that many cases are not seen by the oculist until after the sight of one eye is already lost, or practically so, and that of the other also involved. Could there be any stronger argument than this for the need of a careful examination of the eyes after the fourth decade?

Only a week before last one of the leading surgeons of Philadelphia called for an appointment, thinking he needed a change in glasses, and to my amazement, when I examined his fundus, I saw he had advanced glaucoma, and in the left eye the lower field was entirely destroyed. Yet he was absolutely unconscious of this defect in the lower field of his left eye and was operating daily.

It seems hardly possible that he should be so unobserving. It is probable that in his final operative work he used only the macula which was not involved, and which still had quite good visual acuity. But that is an illustration of how insidious glaucoma is.

The effect of the increased tension of the eye is to destroy by its pressure the most delicate and susceptible portions of the eye, the optic nerve and the retina.

High blood pressure, increased intraocular tension, and hardening of the arteries are terms all too well known to the public, and doctors are not a little to blame for the feeling of apprehension with which a patient learns that his blood pressure or intraocular tension has gone up; surely at a time when "ignorance is bliss. . . ."

There are those who claim to recognize early increased blood pressure in the retinal circulation but the signs are unconvincing, and the use of the ophthalmodynamometer is the only certain though somewhat difficult way of determining it. The practical value of the instrument is yet to be demonstrated, though it has been said to have led to the diagnosis of increased intracranial pressure before the more certain sign, that of choked disc, was present.

When it comes to recognizing the hardening of the vessels of the retina we are on more certain grounds. One of the early effects of sclerosis of the vessels is the excitation of spasm. When this occurs in the central artery of the retina it gives rise to very definite subjective and objective symptoms in temporary loss of vision and ischemia of the retina. In some cases the spasm leads to permanent obstruction by the formation of a thrombosis. At about the same stage of the sclerosis the systolic impact on the stiffened vessels may cause a rhythmic lateral displacement of part or the whole of the retinal ar-

terial tree on the plane of the retina, the so-called locomotion pulse. This is but infrequently observed.

Some years ago we had the opportunity, through the courtesy of Dr. Harbridge, who was practicing in Chester, to see one of these cases of spasm of the central artery. This man was a produce dealer, and was leaning over a basket arranging the apples—I suppose with the largest ones on top—and he suddenly lost the vision of one eye.

It was a temporary failure, but Dr. Harbridge saw him and brought him at once to Philadelphia, and several of us had an opportunity of seeing him. He had quite a series of spasms. The first thing noticed was that there was a closing in of the field of vision from the periphery towards the center. At that time the pupil was also slightly dilated. If the other eye had been closed, it probably would have dilated at a maximum.

There was then, with the ophthalmoscope, visible a spasm of the arterioles of the retina, not a complete collapse, because that rarely occurs even in obstruction, and then, after just a brief time, vision would slowly return, the spasm would be relaxed, and the vessel would refill. Only on one occasion did it last long enough to produce a slight clouding of the retina.

I followed this patient for many years, and while he developed a considerable degree of sclerosis of the retina vessels, he never had another series of spasms.

As the walls of the retinal vessels are normally transparent, the slightest departure from this quality changes their appearance. As a deposit of hyaline or glassy substance in the walls of the vessels early occurs in arteriosclerosis, the walls of the vessels now give back a bright reflection of the light thrown into the eye. The thickening of the walls causes the vessels to become tortuous and firmer, especially the arteries. When therefore an artery crosses a vein it compresses the walls of the vein and as the artery is now opaque the underlying portion of the vein is no longer visible. The distal portion of the vein is slightly distended. When a vein crosses an artery the vein is usually to a degree flattened, though it may arch forward. The vein is frequently diverted from its course

as it crosses the artery. At such a crossing a localized edema may occur. The arterioles, the branches of the central artery of the retina, show increased tortuosity.

The picture of advanced retinal angiosclerosis with high blood pressure added is edema of the optic nerve head, scattered small glistening hard exudates about the central area, and hemorrhages. It is generally believed that retinal hemorrhages are always indicative of hypertension, and are not seen in pure arteriosclerosis. In a recent article Wagner states that a condition to which he gives the term malignant hypertension shows a fundus similar to that seen in glomerular nephritis, with a higher degree of arteriosclerosis, with angiospasm and absence of massive exudate, and an incomplete macular figure. Papilloedema is present.

There are other evidences of ocular arteriosclerosis besides the ophthalmoscopic ones; recurrent subconjunctival hemorrhages, fugacious conjunctival edema, painful accommodation, and rarely hemorrhage into the anterior chamber.

The importance of the early recognition of retinal angiosclerosis is impressive when it is made known that the condition of the retinal vessels is almost a sure index of the condition of the cerebral vessels. The converse does not seem to hold true.

Indulgences which in early life are without serious or appreciable injury to the body tissues and functions, in later life either as a result of cumulative action of the toxic agents or of lowered resistance of the tissues, or both, may bring in their train functional impairment or serious organic change. Notable among these excesses are relatively high carbohydrate intake, alcohol, tobacco, etc.

Of the exogenous toxic agents which affect the retina and optic nerve tobacco and ethyl alcohol are practically the only ones which show a predilection for later life. Possibly two factors contribute toward this: cumulative action, and vascular changes. However this may be, it is rarely seen before forty years of age.

Day blindness and inability to see to read, which are the two principal symptoms, come on slowly but the annoying central scotoma usually causes the sufferer to seek advice. The

symptoms are loss of vision and the day blindness, a scotoma for color (so-called relative scotoma), slight pallor of the temporal half of the optic nerve head, and occasional retinal hemorrhages. If actual atrophy of the optic nerve has not occurred the withdrawal of the poison is soon followed by a return to normal vision. The association of tobacco-alcohol amblyopia and incipient cataract may cause the toxic factor in the loss of vision to be overlooked, the loss of vision being wrongly attributed to the lens changes.

Mention has been made of the occurrence of cataract in diabetes. It may not be entirely germane to the subject, but as diabetes is much commoner after middle life than before, the ocular complications are significant and may early suggest the diagnosis. We will at least enumerate them; changes in the static refraction of the eye, cataract, paralysis of the extra and intraocular muscles, retinitis, lipemia retinalis, retrobulbar neuritis, iritis, uveitis, and hypotension of the eyeball.

There are of course many other senile changes met with in the eye such as the macular degenerations, but their early detection is not of great importance, as we can do nothing for them.

Nephritic retinitis is likewise seen, but only in chronic glomerulo-nephritis is it essentially a condition of later life. The concept of the relation between nephritis and retinitis has undergone considerable change in comparatively recent times. These changes date to the researches of Volhard, who demonstrated that in the retinitis of hypertension and nephritis there is a generalized constriction of the arterioles throughout the body in a varying degree, and he states that continued constriction of the arterioles leads to organic changes in their walls. The constriction is variable, and subject to sudden marked changes almost daily.

Volhard recognizes renal arteriosclerosis without renal insufficiency, *essential hypertension*. This condition makes its appearance commonly between the ages of fifty and seventy years. At first transient, it becomes permanent. Generalized constriction of the arterioles is absent, but localized constriction may be present. The retinal arterioles become sclerosed and later the picture earlier in the

paper described as retinal angiosclerosis occurs. The appearance of hemorrhages increases the gravity of the prognosis.

In renal arteriosclerosis with renal insufficiency, *malignant hypertension*, there is a general spastic condition of the arterioles throughout the body and all the organs show a marked degree of sclerosis of the small arteries and arterioles. The retinal picture is that already described as the retinitis of malignant hypertension.

The distinguishing diagnostic difference between the fundus changes of malignant hypertension and glomerular nephritis is that in the former there is marked angiospasm and that exudates are not so numerous.

...At the conclusion of his paper Dr. Zentmayer presented slides loaned by Dr. Walter I. Lillie, Professor of Ophthalmology, Temple University, commenting upon them as follows:

(Slide) Here we have a normal fundus. The relation of the size of the arteries to the veins in the normal eye is about in relation of three to four. You see, there is light reflection on the vessels. The vessels are not tortuous, but they do arch rather gracefully out to the temporal side, forming an arch surrounding the central area.

On the nasal side the vessels assume a much straighter course than on the temporal side.

That is a fundus of a dark complexioned person, shown by the presence of so much pigment in the choroidal intravascular spaces.

(Slide) Here we have another normal fundus, but this is in a blond person, and you see that there is little pigment in the pigment cells of the retina, so that the choroidal circulation is laid bare and shows the system of flat ribbon-like bands, whereas the retinal vessels you see are cylindrical.

Here again you see the general relation of the vessels, and that they are not particularly tortuous.

(Slide) Here we have a beautiful drawing of the so-called angiosclerotic retinitis described by Foster Moore, and, you see, here you have a very great decrease in the diameter of the arteries and the veins, especially of the veins, with the light reflection on the arteries very much more pronounced than it was in the normal eye that I showed you.

Wherever an artery crosses a vein, especially in the left branch there, you will see it appears as though a segment were cut right out of the vein. You cannot see the vein on either side of the artery because of the increase in the hyaline matter in the walls of the artery.

Scattered through the central area, you see those very hard, sharply cut, glistening lesions, and there is a certain amount of edema at the head of the optic nerve, though not conspicuous. Then, please note the increase in the tortuosity of the vessels, and particularly the branches which go up to the area where those bright spots are, the so-called macular branches.

Then, the smaller arterioles on the disk also show a very great increase in the tortuosity. There is only one cotton wool mass there, right at the lower border of the disk.

(Slide) Now, here you have a picture of glomerular nephritis. I might say that some who are authoritative writers today do not accept these views of Volhard, and they would consider this the ophthalmoscopic picture of a chronic nephritis. You see, here you have a swelling at the head of the optic nerve and an increase in the capillarity.

Then, in the vicinity of the vessels, you see these soft, fluffy areas like absorbent cotton, and then, towards the central area, you see the same condition as was shown in the case of an essential hypertension in the previous picture.

According to present nomenclature, this would probably be called a case of malignant hypertension, the only difference between the two conditions being that in one there is a marked general attenuation of the arteries, that is, in malignant hypertension; whereas this feature is absent in glomerular nephritis.

(Slide) Here is a case of pure arteriosclerosis of the retina. The disk is not in any way damaged, the edges are very well defined, the arteries and veins retain their normal relation of three to four, and in the macular area you see developing a figure which probably will ultimately assume a stellate formation.

(Slide) Here is a classic picture of chronic interstitial nephritis, as the older writers termed it. You see, there is a slight edema at the head of the optic nerve. There are numerous places with these fluffy white cotton wool lesions, and a perfect stellate figure at the macular region. There is a moderate degree of angiosclerosis.

(Slide) Here is a case which the older writers would call the exudative type of nephritic neuroretinitis. The vascular changes are insignificant, but exudative features are very pronounced. There are some hemorrhages, you see, on the left of the disk, extending out towards the macular region, and about these there are those cotton wool patches.

(Slide) Here is one where you see very extensive changes. These are not the cotton wool patches. These are fatty changes resulting from previous hemorrhages. You do not get localized outpouring of blood from the retina unless there has been an actual thrombosis of the vein, so there has probably been an obstruction there following a spasm in the inferior temporal vein, which produced the outpouring of blood, which is not recent, as the blood is undergoing absorption.

(Slide) Here are some of the late changes seen in the arteries. This may be senile; very often it is; and it is here that the perivascular changes are very pronounced, especially periarthritis. You see the white bands on either side of the brighter vessels, which are the arteries, and one branch going off to the left. Superiorly, the vessel is converted into a fibrous cord.

(Slide) Here is a similar condition, but in a more advanced stage, where you have very marked periphlebitis, with formation of new vessels on the disk and numerous hemorrhages.

(Slide) This very beautiful picture is one of sclerosis of the choroidal vessels. You remember, in the eye that I showed you as being that of a blond person, you saw those choroidal vessels, but they were red, and here you see they are converted into white ribbons. Those more solid areas are whirls of capillary vessels, all in the process of sclerosis. There is a slight amount of pigmentation.

(Slide) I spoke of the occurrence of macular degeneration in senile eyes, but did not go into it because nothing can be done even if you do dis-

cover it at that age period. But there is one of the lesions of an area of atrophy, confined to the macular region. You see the exposure of the lesion through complete atrophy of the eye and choroid. There is a fringe of pigment, and beyond that there is a very narrow yellow band of partial atrophy of the choroid. That would be very difficult to differentiate from a congenital macular coloboma.

(Slide) Here you have one in which the lesion is surrounded by this broad band of fenestrated pigment, like a filigree of iron, and you see those two choroidal vessels still persisting in the floor of the lesion. The disk has a somewhat yellowish appearance, and the arteries are entirely too bright, so there is a certain arteriosclerosis also.

(Slide) You see here on the right this cobblestone appearance over in the central area. That is a hyaline degeneration, and this may be observed not only in senile eyes, but in the eyes of young people, and it is accompanied by no disturbance of the function of the eye whatsoever. On the left is a picture which resembles it very closely, except that here you have pigment changes surrounding the individual lesions, and here you have a very marked loss of vision at the macula. That occurs only in senile eyes—the one on the left.

(Slide) This first picture is diagrammatic, but it shows the functional stage of angiospasm. You see there in sections of the arterioles—we used to call those arteries; they are now considered all branches of the retinal circulation, except the central arteries—in two places there is a localized spasm of the vessel. This is a very early stage, either of arteriosclerosis or hypertension of the essential kind.

(Slide) These are actual photographs of the fundus and I have never seen better ones. Here we have in contrast the retinitis of benign hypertension and that of arteriosclerosis. Now, on the left you see a hypertensive lesion. There is no edema and there are only a few cotton wool areas, but there are a number of hemorrhages. This would be a rather late stage of essential hypertension because hemorrhages are the added feature of benign hypertension, and give a bad prognosis.

Now, on the left side you see the retinitis of arteriosclerosis. The difference there is that on the right side, where you have no cotton wool patches, you have a very marked vascular degeneration, as shown by the constriction of the veins where the arteries cross them, and the conversion in one place there of the artery into a fibrous band, and then the formation of a whirl of new vessels in the lower part of the fundus. The essential difference between those two plates is the absence of hemorrhages in the arteriosclerosis, and that the veins and arteries still hold their proper numerical relation of about four to three; whereas, on the other side, there is a general attenuation, you see, of the arteries. They are all more or less reduced in size.

(Slide) Here we have a later advanced stage of the first picture shown, where we had a localized spasm, and here we have a more or less generalized spasm of the arterioles. It is certainly in a very early stage. The one on the right perhaps shows a little more marked constriction of the arteries or arterioles than the one on the left, because it is in a very early stage.

(Slide) Here we have an early picture of malignant hypertension. You have the edema at the head of the optic nerve, though moderate; you have the attenuation of the arteries; and you

have some slight degenerative changes in the central area of the retina. In the left eye there are some cotton wool patches forming. This is a mild degree of malignant hypertension, connoting a general spastic condition of all the arterioles throughout the body, and a beginning sclerosis of the vessels, especially of the retina.

(Slide) Here there are contrasted—this, of course, is diagrammatic—the differences between the retinitis of malignant hypertension and the retinitis of nephritis. You see, the two pictures are very similar. The nephritis has the macular star completed, and the one of malignant hypertension has only a few of the rays or spokes. That is of very little significance. In the retinitis of nephritis the arteries are not as constricted as those in that of malignant hypertension. There is really very little difference. You will notice this snow bank appearance around the head of the optic nerve in both cases.

(Slide) Here is the so-called advanced malignant retinitis or malignant hypertension, a very marked papilloedema, constriction of the arteries, massive exudations, and hemorrhages.
1930 Chestnut Street.

DISCUSSION

CHAIRMAN LAMOTTE: Dr. Zentmayer, I would say that that is a crackerjack paper, and a most excellent and instructive presentation, full of valuable information of use to any practitioner.

I would just like to emphasize the importance of the diagnosis of chronic glaucoma and cataracts, because I have seen or know of too many cases where sight has been lost by people who had been going to optometrists.

As Dr. Zentmayer told you, or inferred, the cataract has no symptoms, no pain, and neither has chronic glaucoma. The eye does not get red, and these people very often go and have glasses changed, with the sight in their eyes decreasing until they are blind, and then they are told to have their cataracts taken out. By that time, the other eye has far advanced disease, and very often is hopeless.

I have often thought that many physicians just do not realize the importance of the differential diagnosis of those two conditions.

Does anybody care to ask Dr. Zentmayer any questions, or discuss anything? You can ask him anything about the eye and he has the information right on the end of his tongue.

DR. R. R. TYBOUT (Wilmington): Years ago I was in the service of a Dr. Charles A. Oliver, and I had access to Dr. Zentmayer's services, who was in one of the clinics there. I felt that I learned a great deal in Dr. Zentmayer's clinic. Therefore, today I come in the attitude of a student. I made every ef-

fort to get here, in the attitude of a student, to learn more, and I not only had my memory refreshed, but I have learned still more.

I think it was a most excellent plan of Dr. Zentmayer's to show the normal fundus. In my talks with the internes of the hospitals in which I am in service I always emphasize the importance, when they are using the ophthalmoscope, of studying the normal fundus as often as there is the opportunity. They do not pretend to be, or maybe do not intend to be, ophthalmologists, but it is most important that they know what the normal fundus looks like, with its occasional anomaly. If they are familiar, then, with that picture, any gross or even subtle pathology is very helpful to them.

In that attitude of learning I would like to ask Dr. Zentmayer what his opinion is in reference to malignant, or various stages of hypertension, as to the formation, or the causation, rather, of chronic glaucoma and the beginnings of cataract.

This is based on Magitot's exposition of the metabolism of a transparent media of the eye by osmosis through the blood vessels, the arterioles. It would seem to me that if the arterioles are as supposed to be, we would then find interference with the osmosis of the vessels, and their balance of osmosis in the nutrition of their clear media, which might cause an interference in the nutrition of a lens as well as in the drainage of the eye.

Another point that has always been somewhat of a problem to me is why, if we have a case of glaucoma, Doctor, and the case is either subacute or acute glaucoma, we have such a very shallow antechamber, and we either do paracentesis for temporary relief or we do an iridectomy, and so on.

I would like to know if it may not be possible that there is an edema of the vitreous humor.

DR. HUPER: I wonder if any data exists in regard to the possibility of vascular changes in cases of cardiac hypotension. I am referring to persons having a prolonged hypotension, over months.

DR. ZENTMAYER: As regards the question of the vitreous humor, in causation of glaucoma, of course there are those who believe that glaucoma is due to volumetric increase in

the vitreous humor. This has recently been brought up by Dunn of Virginia, and it is undoubtedly a factor in the causation of the very shallow anterior chamber that you meet with in acute or chronic glaucoma.

In regard to the cause of increased intraocular tension, aside from volumetric increase, that depends on whether you side with those who believe that the humors of the eye are produced by a dialysis of the blood plasma, or whether you believe with Collins that the ciliary body actually secretes the aqueous humor. That contention is supported by experimental work of Adler.

In regard to hypotension, I am not familiar with hypotension, except as an essential disease occasionally seen in children, a temporary condition, sometimes met with in inflammations of the anterior segment of the eye in children. Hypotension is seen in the late stages of diabetes. I am really not in a position to say that you could make a diagnosis with the ophthalmoscope of the condition of vascular hypotension.

SIMPLIFIED DIABETIC MANAGEMENT: A NEW REGIME*

JOSEPH M. BARSKY, M. D. and
CHARLES S. LEVY, M. D.**
Wilmington, Delaware

Diabetes mellitus, the sugar sickness of the ancients, was first recognized as early as the first century. Galen, due to the polyuria, thought the kidneys merely allowed fluid to run through. In India, the sweetness of the urine had been recognized for many centuries before Dobson, in 1775, obtained sugar by evaporation. Chevreul, in 1815, proved this sugar to be the same as that in grapes. Very little further was done until von Mering and Minkowski, in 1889 and 1892, produced a diabetic state in dogs by extirpation of the pancreas. This was the foundation which led to the work, in 1921, of F. G. Banting and C. H. Best, with the chemical assistance of J. B. Collip working in the clinic of J. J. R. MacCleod. They proved the possibility of preparing an extract containing a substitution hormone called insulin. In 1925, J. J. Abel of

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Johns Hopkins isolated crystals of insulin and suggested its chemical composition. Due to the wide prevalence of the disease and the modern accuracy in diagnosis, diabetes mellitus is assuming an important place in modern medicine.

As we glance over the history through the centuries it becomes apparent that the treatment of diabetes can be divided into three areas: the pre-insulin, before 1921; the Banting era from 1921-35; and the present, the Hagendorn era, 1935-36.

With the advent of protamine insulin, a combination of insulin and fish sperm, the practitioner has at his command a much wider variation in the choice of his treatment of diabetes mellitus. We feel we have entered a new regime. However, close cooperation still must exist between the physician and the patient and the treatment of the disease must follow a carefully preconceived plan. The dietetic management of diabetes is still of primary importance. The choice of diet reflects to a large extent the progress in the treatment of the disease. In the pre-insulin days the high fat, low carbohydrate diet was of necessity in vogue. Since insulin there has been a variation in opinion, some adhering to the low carbohydrate high fat diet, others advocating a medium carbohydrate and still others a high carbohydrate and low fat. With all the disagreement one fact held apparent, a low caloric diet was generally conceived as being advantageous, authorities holding to the truism that a fat diabetic was a bad diabetic. With the discovery of protamine insulin a change in the dietetic conception took place and now the high carbohydrate, low fat, low caloric diet is generally the diet of choice.

The old method of arriving at the dietetic prescription in which the proportion of carbohydrates, proteins and fats were reached by arithmetical formulae has given way to the newer and simpler method where an arbitrary number of grams of carbohydrates are prescribed, the proteins arrived at by means of the desired body weight (the old rule of 1 gm. of protein per kilo of body weight still holding true) and enough fats added to arrive at the decided caloric requirement. This more natural method of reaching a livable diet pre-

scription, plus the greater fluctuation in the time of administration of the new protamine zinc insulin has produced a new regime in the treatment of diabetes. With the addition of protamine insulin to the therapeutic armament the clinician now has three weapons in the treatment of those patients requiring insulin who suffer from this disease. He has first, the regular insulin, purification of that discovered by Banting; second, the crystalline insulin; and third, the protamine zinc insulin. These three preparations differ in the rapidity of their absorption and in the rapidity and duration of their effect. Regular insulin works very quickly and exercises its effect rapidly. Crystalline insulin (a purified form of insulin obviating the addition of any foreign substances and thereby eliminating the possibility of an allergic reaction), was reported by Sayhun of Detroit in 1936. Its advantages are that it lowers the blood sugar gradually and has a continued effect over a longer period, as compared to regular insulin. It reduces the possibility of hypoglycemic reactions or shocks and finally results in a diminution in the number of doses required per day. These results were later confirmed by Hugo A. Freund and Sidney Adler, also Altshuller and Leiser, Rabinowitch and others.

Protamine insulin appeared commercially in February, 1937, in the form of protamine zinc insulin, the zinc being added to stabilize the combination. The difference between the commercial protamine zinc insulin and the protamine insulin of Hagendorn is merely the addition of zinc, a non-toxic metal, which permits the stabilization and therefore the commercial use of protamine zinc insulin. Through the kindness of Sharp and Dohme, we were able to secure this product for clinical experimentation in the early part of 1936 and, early in 1937, published our results in some of our ambulatory cases. The promises that this product gave at that time have been more than born out by developments. In our opinion, it is much superior to any other preparation for use in routine treatment.

The time of administration of protamine zinc insulin, whether given alone or in combination with other insulins, is usually half to three quarters of an hour before the meal. This time varies with the individual case and

some of our earlier unsatisfactory results were due to our failure to properly appreciate this fact. Some of our patients take insulin before breakfast and after lunch, some before breakfast and before lunch, and some before breakfast and after dinner; most receive one dose daily, some before, and some immediately after the morning meal.

Its advantages, and we may say that we use it with a high carbohydrate, low fat diet, are:

1. A progressive improvement in carbohydrate tolerance. The average insulin requirement, while at first larger becomes less.

2. Maintenance of desired weight with a fewer total calories.

3. Lessening of the incidence of acidosis.

4. Average lower blood cholesterol.

5. A better tolerance of infections due to a larger glycogen reserve.

6. Better healing power.

7. A general feeling of well being.

8. Lessening of the dangers of avitaminosis. No special foods are required—a more livable diet which makes a sound economic basis for its usage.

9. A slower and more prolonged action of the insulin.

10. A lessened response to dietetic indiscretions. Lessening of the fluctuation in the blood sugar levels throughout the day and less danger of hypoglycaemic reactions.

11. Greater variation in time at which insulin may be administered.

A large dosage may be given at one time due to its slow absorption. In this connection may we point out that through the courtesy of Sharp and Dohme we have been using a preparation of protamine zinc insulin containing 80 units to a c. c. This preparation is not yet commercially available. Our experience has been that unit for unit U-80, regardless of the size of the dosage, whether 10 units, 65 units, or more, on administration produces the same effect as does U-40.

Due to the limited time allotted this paper we do not desire to introduce a great number of case records but wish to quote briefly the following case as an example of the advantages of protamine over the ordinary insulin.

M. A. W. Age 11 yrs. Admitted in coma with acute diabetes 4/20/36. Standardized and discharged 5/7/36, on 15-0-10 regular insulin. Re-admitted 1/22/37 comatose, due to dietary indiscretions. Discharged 1/30/37 on 20 units protamine once daily. Insulin requirements gradually increased due to failure of cooperation to protamine insulin 27-0-18. Re-admitted 8/22/37 with acute enteritis in a pre-comatose state. Discharged 8/27/37 on 50 protamine, once daily, administered immediately after breakfast with diabetes well controlled and no longer a necessity for an evening dose. This is one of our patients who is taking U-80 insulin. Attention is called to the rapid return to normal in a pre-comatose child, suffering from one of the most dreaded complications of diabetes, an acute enteritis.

In coma a disadvantage of protamine zinc insulin is its slow absorption, consequently, it is not as valuable as is regular insulin. Overdosage produces hypoglycemia insidiously. This effect may be unrecognized and the patient apparently rallying from shock may go into shock repeatedly due to the prolonged action of the insulin requiring more constant treatment. These untoward results are not to be considered as disadvantages of protamine insulin, but rather as a failure to properly choose the type of insulin to be employed in a given case. Proper administration of any form of insulin has no disadvantages. The choice of which insulin to use is all important.

No consideration of diabetes would be complete without the consideration of diabetes from the surgical angle. It is our experience that patients standardized on protamine zinc insulin show less fluctuations in blood sugar levels following surgical operations than those standardized on the old regular insulin.

Fowler, Bensley and Rabinowitch reported twenty-five surgical cases successfully treated with protamine insulin. Their results seem to indicate that protamine zinc insulin can be used in cases with and without infection and in cases with or without the presence of acidosis, and that the average control of the diabetic both pre and post-operatively is much better with protamine insulin.

Obstetrical cases do not hold as much terror with protamine zinc insulin as with regular insulin. The pregnant diabetic should be very

thankful, because, whereas frequently, labor was often fatal for the mother, more often to the child, this mortality has been lowered since the use of insulin and now with the new protamine zinc insulin more mothers are saved and we believe the child mortality will also be lowered. It is a generally accepted hypothesis that the death of the child is due to hypoglycemia caused by an overactivity of the child's Isles of Langerhans to compensate for the lack of insulin in the mother. After the birth of the child the amount of insulin manufactured during or by the child is therefore excessive. By preventing the peaks with protamine insulin this danger is apparently decreased.

We would like to quote the following obstetrical case treated with protamine zinc insulin. Mrs. C. M., age 38 yrs. Female. White. Admitted to the diabetic dispensary of the Wilmington General Hospital taking 10-5-5 protamine. Diagnosis of pregnancy was made. The diet balanced and 20 units protamine insulin given once daily. She was kept with a normal blood sugar and a gradually increased insulin dosage until 6/24/37 when 30 units were given (25-0-5). This dosage gradually increased until 8/15/37 when she went into spontaneous labor and was delivered of a normal female child. At the time of delivery she was taking 25-0-10 protamine insulin with a normal blood sugar. Recovery was uneventful, and she was discharged on 8/25/37, insulin requirement being reduced to 10-0-0. Blood sugar on the baby six weeks after delivery was 104. Patient is now taking 18 units of protamine once daily and is very well controlled.

The complications of diabetes are still a great factor. These are divided into three main classes: cardio-vascular, infections, and acidosis. Acidosis in protamine zinc insulin cases properly treated has become a rare complication due to the ability of protamine zinc insulin to handle dietary indiscretions that in former years produced disastrous results, the greater glycogen reserve apparently improving the carbohydrate tolerance of the patient. In our experience diabetics with infections have had much less disturbances of their blood sugar levels once they were properly standardized with protamine zinc insulin.

It is still too early to say what will happen with our cardio-vascular complications but there is less danger of coronary reaction with protamine zinc insulin due to the lessened incidence of shock.

There has been noticed in many clinics an increase in the incidence of peripheral vascular disease. This is probably due to the increased life span of the diabetic making it possible for him to live long enough to develop complications. This circulatory impairment with its menace of gangrene is of grave significance, formerly in the presence of gangrene, particularly with greatly diminished oscillometric readings and with histamine tests showing markedly decreased circulation, a high amputation was always advocated.

J. B. Wolffe of Philadelphia and his co-workers, reasoning backward, recalled that in the days of impure insulin there was less incidence of coronary attacks during shock than with the purified insulin. They theorized that in the extraction of the insulin some product was left behind which would have a favorable effect upon these arteriosclerotic conditions. They produced a preparation, an insulin free pancreatic tissue extract, which they attempted to use in the treatment of cardio-vascular diseases. The next thought was, since it apparently aided in the treatment of diseases of the coronary, why not in terminal artery disease?

For the past five years, we have been working in cooperation with Wolffe and his associates, and we have been employing pancreatic extract (prepared by him and in the past few years prepared in a similar fashion and standardized according to his methods by Grant, under the name of "pancreatic hormone") as a prophylactic measure as well as after the onset of gangrene.

We have found on the administration of this extract a choline-like substance which we call quasicholine is increased in the urine, the significance of this we are still studying.

We make it a rule to question patients closely as to the possibility of circulatory diseases in the lower extremities, and we examine these extremities very carefully for impairment of circulation. Upon the discovery of any evidence of impairment we immediately start the administration of one to two c. c. of panere-

atic hormone intramuscularly daily, or three times weekly, depending upon the severity of the case. We find quite frequently that following three or four weeks treatment there is usually a marked improvement in circulation and walking capacity.

Some of these cases will be reported shortly in one of the current medical journals.

The future holds the answer to these various problems. We have gone a long way, but until we can assure the diabetic that the incidence of cardio-vascular disease is almost eliminated we have still much work to do. With the prolongation of life resulting from insulin we are now confronted with a new disease. What is the complete future of the diabetic child?

To summarize: our conception of the modern treatment of diabetes is a diet sufficient to maintain the patient at the desired weight, one that is relatively high in carbohydrates and low in fats, with or without insulin, depending upon the patient's individual requirement. We feel that with this type of dietetic formula, and with the addition of protamine zinc insulin to our armamentarium, diabetic management has been greatly simplified. There is no substitute, of course, for the normal pancreas, but insulin is the best we have to offer as yet. We have come a long way since Banting's epoch-making work. Probably in no other disease has medicine made such gigantic strides, but until we are able to assure our diabetics that we can, not only treat his complications but absolutely prevent them, we have still much work to do.

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710 West Street

DISCUSSION

DR. CHARLES S. LEVY (Wilmington): I have assisted Dr. Barsky in the preparation of this paper, and, as he has stated, we have omitted the case histories upon which the results have been based. I want to emphasize this fact: that we are very highly pleased with the results we have obtained with the use of protamine zinc insulin.

The new preparation that Dr. Barsky mentioned, which is the insulin-free pancreatic hormone, has shown some excellent results in our hands. It is especially useful in the few cases that I recall in assisting these arteriosclerotic patients to have a greater walking capacity, which was absent before they started to take this new preparation.

DR. SIDNEY CHAVIN (Wilmington): I would like to ask Dr. Barsky to tell us of some of the early symptoms in the case of a child having diabetes. I mean in the early stages, the early symptoms, not as far as coma.

Another thing I would like to know is whether the pancreas is the only organ that is producing insulin in the normal individual; and also concerning rehabilitation of the various organs producing insulin after some treatment.

PRESIDENT WHITE: Are there any other comments?

I remember when I was a younger doctor than I am today that with diabetic patients, as I recall, we used to feed them all the water they could drink, and they were everlastingly thirsty; we would feed them all the food they could eat, and they were everlastingly hungry. It seems to me that diabetes has gone a long way in these last few years.

Dr. Barsky, would you care to answer those questions now?

DR. BARSKY (Wilmington): The early symptoms of diabetes in a child are no differ-

ent from those in the adult, other than usually they are more acute. Symptoms, of course, of practically all diabetics in the early stages, are digestive: first, hunger and thirst; then polyuria, with loss of weight and loss of strength.

In the case quoted, the child whom we called an acute diabetic, that child had been operated upon for acute appendicitis two months before the onset of the diabetes. At no time during the child's hospitalization—and I personally looked up the record—was there anything to suggest a diabetic state. Yet she was brought into the hospital in coma, with the blood sugar, to the best of my recollection, well above five hundred milligrams, and a CO_2 , about twelve.

As to the question of the pancreas being the only organ that produces insulin, we know that insulin is produced by other organs in the body. Insulin can be extracted from various glands, as the thymus and submaxillary salivary glands, the liver, the blood, the muscles, etc., even the urine of normal individuals. We are all aware of these diabetics who are apparently insulin resistant. Every once in so often you find a diabetic who apparently will not respond to insulin. You give them insulin or you do not give them insulin, and the blood sugar level remains apparently the same.

From our concept of diabetes as a pancreatic disease, we do not believe these to be true diabetics, no more than in the case of these fat diabetics who come to us complaining of itching, frequency, thirst, hunger, showing glycoemia and elevated blood sugar levels, who, upon diet alone, with a reduction of weight, eventually are able to practically forget their diet entirely, and show no evidence of diabetes.

Does that answer your question, Dr. Chavin?

DR. CHAVIN: There is one more—about rehabilitation of the various insulin-producing organs after treatment.

DR. BARSKY: As far back as 1926 the teaching was that the pancreas had a definite tendency to regenerate. Whether the fact that the pancreas itself is ordinarily able to metabolize more sugar than we usually take is responsible for this, or whether it is the fact that insulin tides the pancreas over the period of time when it is overburdened, and causes an apparent regeneration in the ability to metabolize sugar, we do not know. We do know, however, that diabetics die, and to the best of our knowledge show us a normal pancreas.

If some other organ, as the liver, is not the cause of the diabetic findings, then apparently we do not know enough pathologically to find the reason in the pancreas itself.

Third Annual Postgraduate Institute Philadelphia, March 28th to April 1st

The large number of advance registrations presages a large attendance of physicians at the Third Annual Postgraduate Institute to be held in Philadelphia, March 28th to April 1st, 1938.

The subject of this year's meeting is "Diseases of the Digestive Tract" and the speakers are all men of national reputation.

Among the features of the session is the opening day luncheon on Monday, March 28th at which the following will be guest speakers—Hon. S. Davis Wilson, Mayor of the City of Philadelphia; Dr. William C. Hunsicher, Director of Health, City of Philadelphia and Dr. David W. Thomas, President Elect of the Medical Society of the State of Pennsylvania.

On Wednesday evening, March 30th, there will be a dinner at which Dr. Frederick J. Bishop, President of the Medical Society of the State of Pennsylvania will be a guest speaker.

Dr. Arthur C. Christie of Washington, D. C., will deliver the J. Chalmers Da Costa oration on "Comprehensive Planning for Medical Care—The Physicians' Responsibility."

EDITORIAL

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THE SURVEY OF MEDICAL CARE

For many years back—long before the Committee on the Costs of Medical Care was invented—the American profession has been harassed and the public bombarded with the most wild and fantastic stories about the inadequacy and the unavailability of the services rendered by the medical profession. When such stories reached the ears of the thinking people, the reaction was generally small or nil—the thing was discounted as representing, generally, a loud-mouthed coterie of persons, propagandists by profession, who had their own axes to grind, and being laymen of the economic, engineering, social service, etc., professions, their strictures anent the medical profession and its work

were not taken very seriously, for they had no knowledge of, experience in, or sympathy with the rank-and-file doctor and his work. For the most part, these bleatings represented speciously, a sob-sister appeal to the psychology of the masses, the forerunner of what the present national administration delights in calling “concern for the underprivileged.” The significant thing during all those years is that while these protagonists of state medicine, compulsory health insurance and various and sundry other un-American ideas were shouting from the hilltops for the poor, the unassuming rank-and-file doctors were down in the valleys working for the poor, donating services worth millions of dollars a year.

Serene and complacent in the contemplation of a difficult task well done, the medical profession was caught in the maelstrom of a world-wide depression and began to ask a few questions of itself: Why do we work hard day and night and barely earn a living? Why has the general purchasing power sunk so low that medicine is becoming a luxury? What is wrong with business that it cannot pay its workers a living wage? Plunged into a serious plight, these and many more were the questions for which they sought an answer, and at last an authoritative answer is on the way, at least of the medical part of the problem. The major problem, perhaps, is the economic one, concerning which likewise facts are finally coming to light. (Read the editorial which follows.)

Pursuant to a Resolution of the Board of Trustees of the American Medical Association, each county medical society—and there are over 2,000 of them in the United States—and each state medical society is to make a thorough survey (1) to determine the prevailing need for medical and preventive medical services; and (2) to develop the preferable procedure for supplying those needs. This study of the demand and the supply side of medical services will be a laborious one, but it is something that simply must be done, first, because there are some people without adequate service; and second, because only with actual facts can the radicals and the propagandists

be silenced and defeated. We want no more glib prattle about "one-half of the people who need medical care cannot get it;" nor do we want any more extemporaneous guesses that "less than 5% of the people who need medical care cannot get it." What we do want is facts, all the facts, and with these in our possession, the medical profession will be able to solve one of the most pressing of our public problems.

The gigantic scope of this study can be glimpsed from the articles in the *Journal of the A. M. A.*, January 15, 1938, Editorial, page 212; February 12, 1938, p. 77B; and March 5, 1938, page 127B. The work will involve every agency that touches sickness—physicians, dentists, nurses, hospitals, clinics, health departments, relief agencies, educational institutions, etc. The mere enumeration of the agencies that must be interrogated shows what a job is before us, but it will be done, and done deliberately and accurately. The Medical Society of Delaware and the New Castle County Medical Society each has a Committee on Medical Economics; it is now necessary for Kent and Sussex Counties to set up immediately the committee that shall have general supervision of the survey in those counties. With these and the national blank forms in hand, the survey in Delaware will soon be under way.

TRUE CAUSE OF LACK OF MEDICAL CARE

Surveys, investigations, studies, statistical reviews, reports and other inquiries have in recent years been applied to the medical profession with such frequency and regularity that the conscientious medical man is apt to consider such studies as propaganda, issued by someone with an axe to grind and largely of no real benefit to anyone. A recent report, however, of the United States Public Health Service is interesting because for once the medical profession is not accused of inefficiency, inadequacy and selfishness. For once the lack of medical care for a large section of the population is not laid at the door of the medical practitioner.

Since no individual or group is accused by this report and since it does not show the medical profession to be withholding for selfish reasons proper medical service from the public, this statement of the United States Public Health Service will probably not receive wide publicity. Nevertheless, it does contain certain food for considerable thought. A Works Progress Administration grant of \$4,000,000 provided funds for the study. A total of 800,000 families, representing 2,800,000 persons, were quizzed by the WPA investigators. Of these families, eighty per cent had incomes of less than \$2,000 a year, and forty per cent less than \$1,000. The report showed that thirty per cent of illness in these low income families received no medical care. It further showed that the infant death rate among the families with the lowest incomes was 168 per 1,000, as compared to 30 per 1,000 in a group of families of \$3,000 annual income.

It is, therefore, quite apparent, that the inadequate distribution of medical service, so long and so loudly decried by the reformers and promulgators of studies on medical care, belongs in the same category as the inadequate distribution of good food, decent lodging, proper clothing and other essentials of human existence. For once it is shown that those able to purchase the ordinary necessities of life are also able, under the present system, to obtain sufficient first class medical service. It is, therefore, apparent, that correction of the evils of inadequate medical service to large groups of the population will be corrected when the general economic situation is corrected. The solution of the problem of medical care for the indigent is no more simple than that of the problems of proper food, proper clothing, proper housing.

Indeed, the report itself states: "It is apparent that inadequate diet, poor housing, the hazards of occupation and the instability of the labor market create immediate health problems." At last the blame falls where it should.

Editorial, *Northwest Med.*, Feb. 1938.

MISCELLANEOUS
Physicians Tour to the A. M. A.
Convention

The thought that the forthcoming A. M. A. Convention in San Francisco, June 13th to the 17th, is such a splendid opportunity for a tour of the United States both going out and coming back, has inspired definite action. The cooperation of more than 25 state medical societies has made it possible to arrange a special train tour which will include such outstanding highlights of the North American continent as the Indian Detour, the Grand Canyon, Los Angeles, Riverside and Santa Catalina Island—on the way out to San Francisco. A choice of two return routes is possible, one of which visits the charming cities of Portland, Seattle, Victoria and Vancouver and the beautiful scenic spots of the Canadian Rockies; the second route travels via Yellowstone National Park, Salt Lake City, Royal Gorge, Colorado Springs, and Denver.

There is an all-inclusive price for this tour which includes transportation from home-town to home-town, though the tour starts officially at Chicago on Monday, June 6th, from which point an American Express escort joins the group, as this travel company has been appointed transportation agent and the business details of the trip are in their capable hands.

Let us take a preview of the tour. The first day out of Chicago, racing across the broad, wheat growing face of Kansas, we become acquainted with our traveling companions, physicians from other states, their families and friends, and find ourselves among congenial, like-minded traveling companions. We first leave our train at Lamy, New Mexico, to enter the Indian Pueblo district by motor-coach. We spend a whole day exploring the traces left by a vanished civilization on this continent, visiting Santa Fe, Tesuque, Puye and Santa Clara Pueblo.

The next morning's arrival at the Grand Canyon will remain in our memories forever. The vast chasm, 4 to 18 miles wide from rim to rim gives us stupendous vistas of awe-inspiring beauty, unparalleled the world over. We drive over the famous Hermit Rim Road, skirting the edge of the chasm in the morning, and in the afternoon over the Desert View

Road through the Tusayan National Forest and along the Canyon's rim, stopping at Yavapai Point Observation Station for a short, interesting lecture by the Park Naturalist. This drive ends at the Watch Tower, a recreation of the ancient towers erected by the prehistoric inhabitants of the southwest.

The golden, amazing city of Los Angeles is next on our itinerary, and our sightseeing trips acquaint us with its Spanish Quarter and Chinatown, as well as its beautiful environs, including flowering Pasadena. Riverside and its orange empire, its lemon and grapefruit orchards and its famous Mission Inn, is another destination; and then, on our third day in California we sail to beautiful Santa Catalina Island, playground of this land of the sun. And in this delightful manner, a week after leaving Chicago we arrive at San Francisco in time for the Convention. We shall not discuss the interesting time that awaits us at our conclaves, as the object of this article is to describe the pre and post-convention tour. So we turn again to our itinerary after the Convention.

Supposing we had chosen Return Route No. 1. We shall visit Portland, Oregon, famed as the City of Roses, and enjoy as well a drive along the noted Columbia River Highway. Seattle is next, and here we also cover all the points of interest, including both the Lake and Sound districts. Now the Canadian part of our journey begins, and we sail by comfortable steamer to the cities of Victoria and Vancouver, where we do sightseeing. Now a train takes us into the enchanting scenic regions of the Canadian Rockies, and we stop at Chateau Lake Louise, at the lake of the same name—a gem of exquisite color, surrounded by green forests and snowy peaks. Our drives through the heart of the Rockies takes us to Moraine Lake, the Valley of Ten Peaks, Johnson Canyon and finally to Banff, where we make another stopover. After additional sightseeing around Banff, we entrain for Chicago.

Return Route No. 2 takes us to Chicago in a more southerly route. A 3½-day tour of Yellowstone National Park is one of the highlights of this tour. Ranger naturalists conduct our party to the geysers and hot pools, and we feast our eyes on Old Faithful in its hourly eruption. We also see the Grand Can-

yon of the Yellowstone and Mammoth Hot Springs. Salt Lake City is on our itinerary, which gives us an opportunity to visit Saltair Beach on Great Salt Lake, also the Great Copper Mills and Smelters. Our next call is at Colorado Springs, the noted health and pleasure resort. Our travels in the Rockies take us up to the summit of Pike's Peak, to the Garden of the Gods, to Seven Falls, and finally to Denver. This lovely city is a center for outings in the Rockies, and we are soon off on a 65-mile tour of Denver Mountain Parks, including Memorial Museum and Tomb of Buffalo Bill of western fame. From Denver we travel to Chicago.

The above is barely a glimpse of the outline of the tours, but it is hoped that some idea has been given of the enjoyable travel awaiting those physicians and their families and friends, who wish to combine attendance at the Convention with an interesting journey and a happy vacation.

Components of Vitamin B Complex

E. M. Nelson, Washington, D. C. (*Journal A. M. A.*, Feb. 26, 1938), defines the "vitamin B complex" and explains the nomenclature that has been used to designate individual members of the complex. Only two members of the vitamin B complex, vitamin B₁ and riboflavin, have been shown to be chemical entities. Only two members of the vitamin B complex, vitamin B₁ and the P-P factor, have been unequivocally linked with deficiency diseases in man. The demonstrated function of riboflavin in oxidation reduction systems, its wide distribution in living cells, its demonstrated relation to growth of rats and chicks and the development of cataract in rats indicate that it is probably an important nutritional essential for man. Clinical investigations have led to the conclusion that riboflavin is ineffective in the treatment of human pellagra and animal experimentation leads to the conclusion that lack of this substance is not responsible for the development of blacktongue in dogs or nutritional dermatosis in rats or chicks. There is at present no conclusive evidence that blacktongue in dogs as produced on Goldberger and Wheeler's diet is not the analog of pellagra in man. Evidence in accumulating which indicates that a nutri-

tional dermatosis in chicks may be closely related to human pellagra. Elvehjem and Koehn have found that concentrates which will prevent chick dermatosis are also quite effective in curing blacktongue in dogs. Fouts, Lepkovsky, Helmer and Jukes found that the "filtrate factor" of Lepkovsky and Jukes, which had been demonstrated to be preventive of a chick dermatosis, was curative of human pellagra and of blacktongue in dogs. If the observations of Smith which indicate that the P-P factor of Goldberger consists of two or more factors are confirmed, the exact relationships of the deficiency diseases in the dog and chick to human pellagra cannot be visualized. The relation of vitamins B₃ and B₅ to other members of the B complex is not clear. If the nutritional requirements of the pigeon are similar to those of the chicken a reassessment of the importance of these factors will be necessary to catalog them properly with other factors. Since the original work on vitamin B₄ seems to have been disproved and attempts to confirm more recent work on this factor have not been reported and factor W has not been associated with any deficiency syndrome, the importance of these factors is also rather obscure.

Differential Diagnosis of Pain Low In the Back

ARTHUR STEINDLER, in collaboration with J. V. LUCK, Iowa City (*Journal A. M. A.*, Jan. 8, 1938), believes that the allocation of the source of pain due to disorders low in the back offers a distinct advantage for the management of the disorder. This allocation is thoroughly feasible in the large number of cases in which the trouble involves structures supplied by the posterior division of the spinal nerves, because the seat of pain is either accessible to the palpating finger or reveals itself by transmission through the leg test or both. An attempt has been made to show by the procaine hydrochloride test that both local pain and radiation are in causal connection and that radiation may be elicited by an area of local pain as a reflex symptom without being caused by root compression. This theory does not by any means reject true root compression neuralgias as they occur with arthritis or with special pathologic conditions of the lumbosacral level. Proof is furnished that in the large group of cases of the posterior division syndrome such radiation is a reflex phenomenon, because it can be suppressed together with the local pain by the injection of procaine hydrochloride.

Vomiting of Pregnancy

Recently in a case of intractable vomiting of pregnancy in which jaundice had begun to develop, it seemed possible to John M. McGowan, J. O. Baker, Arthur M. Torrie and John Lees, Edmonton, Alta. (*Journal A. A. A.*, Feb. 12, 1938), that muscle spasm of the common bile duct due to obstruction of its lower end might be a causative factor. Glyceryl trinitrate was given after each meal with the result that vomiting stopped and a proposed therapeutic abortion was rendered unnecessary. This experience suggested the following study: A duodenal tube of the Sawyer type was passed into the duodenum according to the usual method. With the patient flat on her back on the x-ray table the duodenal tube was injected slowly by means of a syringe with a suspension of barium sulphate. When a sensation of resistance was transmitted to the thumb, injection was discontinued and a roentgenogram immediately taken. If no resistance was felt, 40 cc. of suspension was injected. Fluoroscopic studies were also made. Results of roentgenograms showed the first and second portion of the duodenum in normal persons to be a curved, sausage shaped structure lying to the right of the first, second and third, or the second, third and fourth lumbar vertebrae and completely filled with barium. Ten minutes following subcutaneous injection of morphine, the second portion of the duodenum seemed to be in a state of spasm. By injecting the common bile duct by means of a T tube, at the same time as the duodenum was injected with barium, it was demonstrated that this duodenal spasm produced a closure of the lower end of the common bile duct and an increase in pressure within the biliary system. Similar duodenal studies were performed on two patients who suffered from severe vomiting of pregnancy. In each case a marked spasm of the second portion of the duodenum was present. The pylorus was relaxed, and reflux of barium into the stomach took place. The stomach seemed to lack tone, as evidenced by the low level of the duodenal tube as it crossed the vertebral column. Following inhalation of amyl nitrite, the second portion of the duodenum was relaxed and therefore restored to normal. Further, the pyloric tone

was increased and there was less reflux of barium into the stomach. The gastric tone was improved, as evidenced by the fact that the duodenal tube crossed the vertebral column the length of one vertebral body higher. The duodenal spasm which is found in the vomiting in pregnancy is similar to that which had been produced by the administration of morphine in normal individuals. Morphine had also produced extreme nausea and sometimes vomiting in a few normal individuals. Twelve consecutive patients who suffered from severe vomiting of pregnancy were treated by means of glyceryl trinitrate (nitroglycerin) 1/100 grain (0.0006 Gm.) under the tongue before and after meals. The results were uniformly good. All patients ceased vomiting within two days of the onset of treatment; one patient did not vomit once after the drug was used. It was found that taking the drug ten minutes before meals gave more complete relief of nausea than taking it after meals. No untoward effects were noticed except a transient headache of a few minutes' duration. The patients were instructed to remain in the prone position for ten minutes after placing the tablet under the tongue.

OBITUARY

JAMES L. FRANCE, M. D.

Dr. James Lindsay France, of Wilmington, chief consulting physician of the Delaware Hospital, who retired from active practice about three years ago, died at his home on March 14, 1938, of pneumonia, aged 68 years.

Dr. France was born in Norwich, Conn., July 12, 1870, a son of the late Robert A. and Lydia Lindsay France. He received his education in Norwich Academy and Columbia University, getting his degree of doctor of medicine in 1892. He served as interne at the Sloan Maternity Hospital and in the outpatient department of the Roosevelt Hospital in New York. He served in the Spanish-American War as major-surgeon.

Associated with the Delaware Hospital since 1893, Dr. France served as assistant in medicine and surgery, chief of medical service, president of the staff, and was appointed chief

consultant when he retired from active practice.

Dr. France was a member of the Sons of the American Revolution, the American Medical Association, the Medical Society of Delaware, the New Castle County Medical Society, Philadelphia Medical Club, Union League of New Haven, Conn., Hay Harbor Yacht Club at Fisher's Island, Temple Lodge No. 11, A. F. and A. M., St. John's Chapter, R. A. M., St. John's Commandery, Knights Templar, Gunning Bedford Council, Delaware Consistory, Lu Lu Temple of the Mystic Shrine, Philadelphia, the National Sojourners, and the University Club. In politics he was a Republican.

Dr. France was critically ill about two years ago from a heart condition from which he never fully recovered. Dr. and Mrs. France spent much of their time at their home at Fisher's Island.

Dr. France is survived by his wife, the former Miss Virginia Beeson, whom he married September 3, 1919; one daughter, Mrs. Henry Walter, Tegueigalpa, Honduras, and two grandchildren, Jean France and James Henry Walter.

The funeral services were held on March 17, 1938, at the Chapel of the Wilmington and Brandywine cemetery, with burial in the same cemetery.

BOOK REVIEWS

Synopsis of Genito-Urinary Diseases. By Austin I. Dodson, M. D., Professor of Genito-Urinary Surgery, Medical College of Virginia. Second edition. Pp. 294, with 112 illustrations. Cloth. Price, \$3.00. St. Louis: C. V. Mosby Company, 1937.

Dodson's *Synopsis* admirably fulfills the purpose for which it is intended, a reference work for the busy practitioner and student whose hours are crowded. The second edition includes all the desirable new material that has appeared since the publication of the first edition.

Handbook on Nasal Accessory Sinuses. By Frank L. Alloway, M. D. Pp. 121. Cloth. Kingsport, Tennessee: Kingsport Press, 1937.

The reviewer of this book had his doubts as to the value of only 121 pages on such a

large subject as the sinuses and their diseases. There is, however, a lot of meat in this little book. As the author says, part of this work is from his lectures at the Postgraduate Course given at the U. S. Diagnostic Center, Washington, D. C. The matter is concise and reliable, even including operations.

There is a good chapter on the sinuses versus eye disorders, where focal infections and the size of the optic canal in their relations to optic nerve disease are emphasized.

Emotional Adjustment in Marriage. By LeMon Clark, M. S., M. D., Assistant in Obstetrics and Gynecology, University of Illinois. St. Louis: C. V. Mosby Company, 1937. Pp. 261. Cloth. Price, \$3.00.

This rather small book is not written as a scientific treatise; it is more or less of a popular nature. It contains information which every physician should know and which is unfortunately neglected in medical training. He discusses sex in a rational manner and attempts to emphasize the fact that the instinct must be accepted in a normal manner and as a part of human physiology. Beyond this he attempts to elevate the instinctive drive to coincide with the cultural level of civilization. He feels that the general practitioner should be able to give advice to young people before they are married. He also emphasizes the correction of physical defects which might interfere with proper marital adjustment. One chapter is devoted to the advantages and disadvantages of various types of birth control. Although many books have been written on this subject, one feels that the author has attacked the problem in a sane manner, although at times he seems to be almost too idealistic. It is a book which the intelligent lay person could understand and one which a physician who has neglected the subject of marital and sexual adjustment in regard to his patients, should read. It is undoubtedly true that many neurotic patients would experience a relief of symptoms if they were taught to accept the sexual instinct in the same manner as any other, and if their fears and feelings of guilt were removed by confidential interview with the physician.

1789—MEDICAL SOCIETY OF DELAWARE—1938
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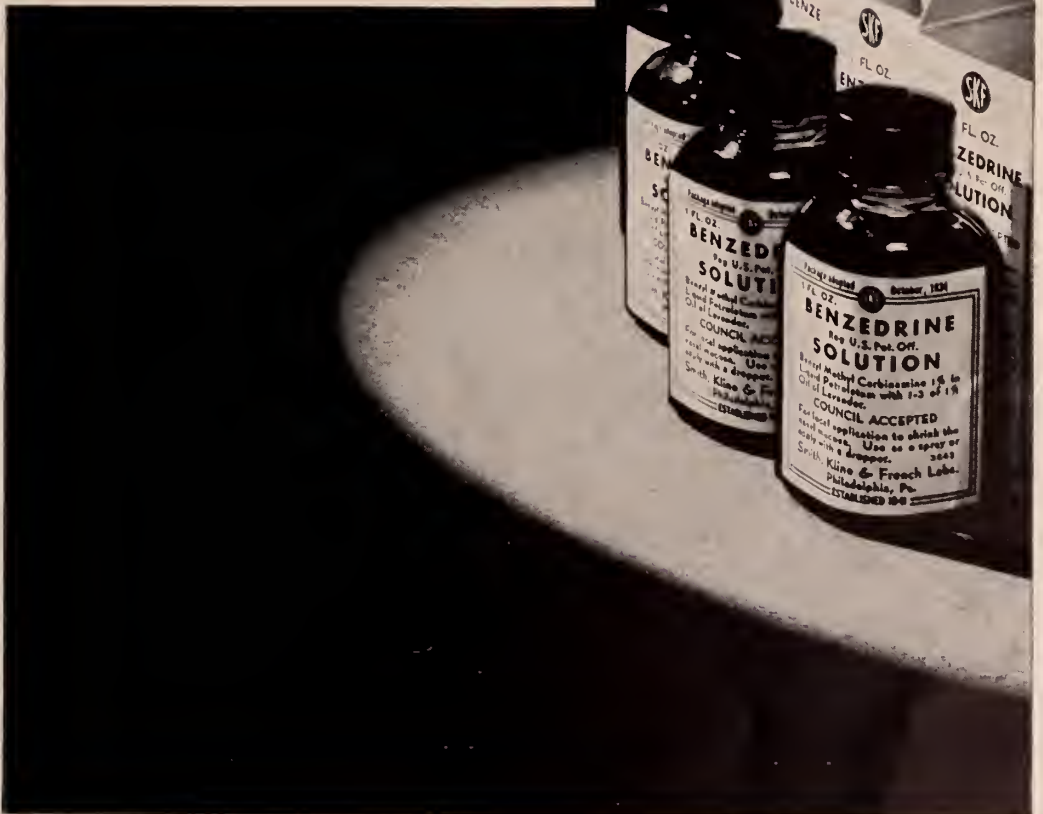
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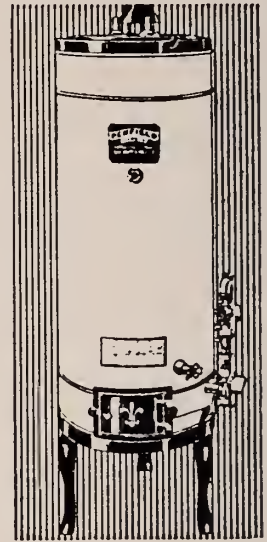
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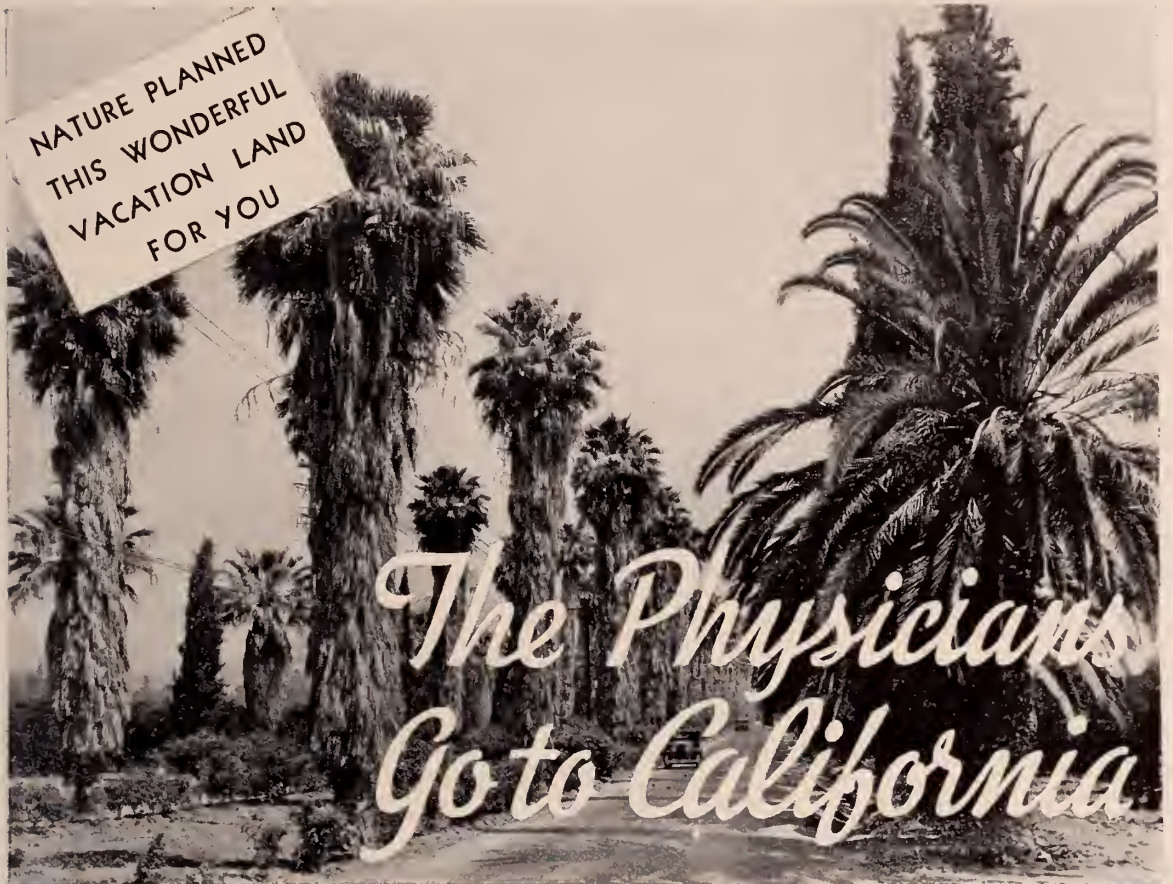
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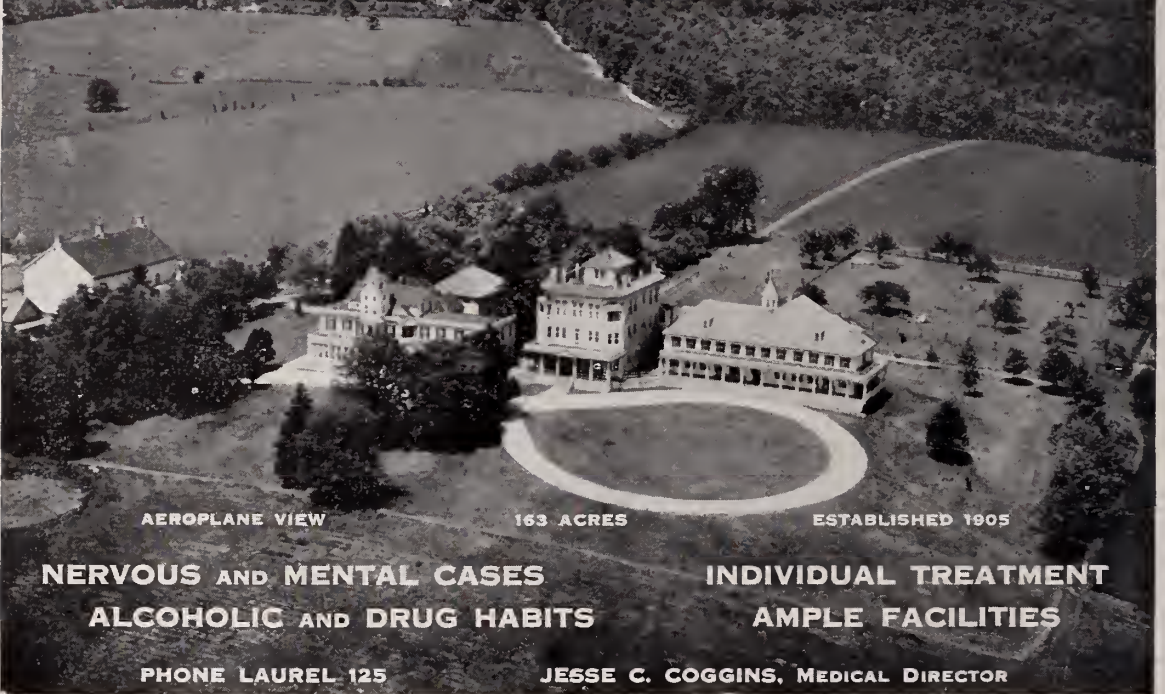
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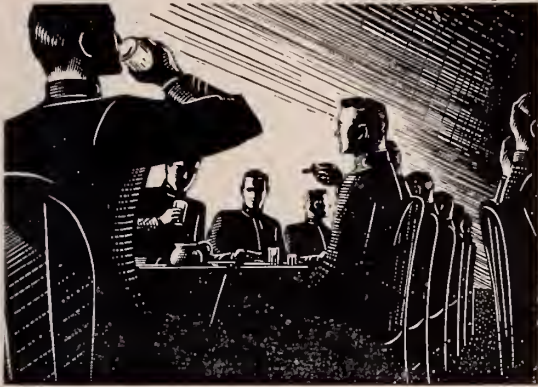
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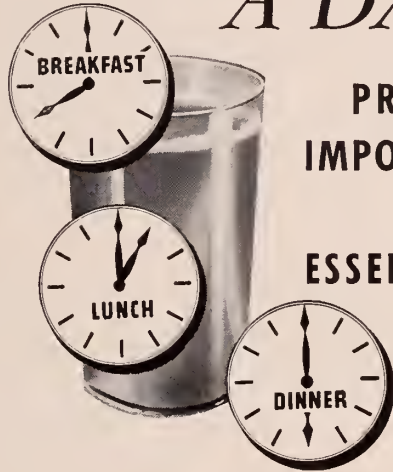
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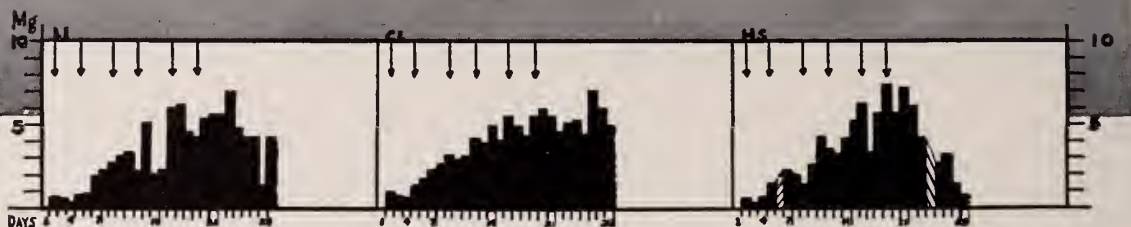
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THE DANGER OF PRE-OPERATIVE DELAY IN SUSPECTED BRAIN TUMOR CASES*

FREDERIC H. LEAVITT, M. D.*[†]
Philadelphia, Pa.

Brain tumors are becoming an increasingly frequently observed entity in general hospital practice; not because they are occurring with greater frequency, but because the general practitioner is becoming more "brain tumor" conscious. It is a well-known dictum in neurosurgical practice that early diagnosis and treatment of "space taking" lesions within the skull is of the utmost importance in order that the greatest good may be done for the patient with the least harm from the surgical procedure. To continue this crusade of helping the brain tumor patient, I am presenting this paper in reference to the danger that ensues when unnecessary pre-operative delay occurs after a definite diagnosis of an intracranial lesion has been established.

During the past year, on my neurological services at hospitals in the metropolitan area of Philadelphia, death occurred in nine patients in whom a definite diagnosis of a "space taking" lesion of the brain had been made and in whom operation had been delayed for one reason or another. It is obvious that some of these patients could not have been saved by operation, but at least they could have been given the benefit of the small ratio of chance afforded by operative interference, which was denied them in view of the events that transpired and snuffed out their lives. All of these patients died sudden deaths from respiratory failure incident to compression of the medulla or sudden hemorrhage into the cerebral new growth.

CAUSES OF SUDDEN DEATH

In the summation of causes of sudden death, according to the coroner's report, L. Hamman (1) reports that 91% of sudden deaths from natural causes are due to cardio-vascular disease, and that these are divided as follows: coronary occlusion, 40%; pulmonary hemorrhage and embolism, 10%; apoplexy, 8%; aneurysm, 12%; valvular heart disease, 12%; myocardial heart disease, 8%; other cardio-vascular cases, 10%. In the relatively small group of 9% not due to cardio-vascular disease is placed my current series of acute brain tumor cases.

SYMPTOMATOLOGY

In order to cut down this proportion of sudden deaths in relation to brain tumors, it is necessary to determine two factors of great importance, the first, "Is a tumor present?", the second, "Where is the tumor?"

A brain tumor is essentially a "space taking" lesion, and, as such, produces an increase of intra-cranial pressure, distortion and compression of various parts of the brain, and destruction of contiguous tissue. Any pathological condition that takes up space within the skull falls into this category, examples of which are tumors, abscesses, aneurysms, inflammatory growths such as gummata and tuberculomata, blood clots, pachymeningitis, and localized collections of fluid as in cysts. The three cardinal subjective symptoms of such adventitious collections of foreign material are necessarily those due to increased intracranial pressure, namely: a. headache; b. ocular disturbances; c. vomiting, frequently projectile in character. These are the three symptoms that first indicate, in the great majority of cases, that a "space taking" lesion is present.

The localization of such a tumor is a difficult matter in many cases. If the tumor lies

*Read before the Medical Society of Delaware, Wilmington, October 12, 1937.

**Assistant Professor of Neurology, Graduate School of Medicine, University of Pennsylvania.

in what are known as some of the "silent areas" of the brain, accessory methods of localization must be resorted to, such as ventriculography or encephalography. However, careful neurological examination of the patient is generally sufficient to localize growths in a large proportion of cases.

Some of the commoner signs that aid in localizing a cerebral new growth are:

- a. Localization and character of the headache
- b. The character, frequency, and causal relation of the vomiting to various positions of the body
- e. Vertigo—its causation and character
- d. Convulsive attacks—whether they be purely motor, sensori-motor, or entirely sensory. Such attacks, especially when they are focal or Jacksonian in character, generally indicate an involvement of the frontal, temporal, or parietal regions
- e. Changes in visual acuity and in the appearance of the fundi of the eyes are of the greatest value in estimating the severity of the increased intracranial pressure and in helping one to determine how soon operation should be done. Papilloedema, or "choked disc" is the most definite sign obtainable of increased intracranial pressure. Such an observation, by means of the ophthalmoscope, should be made by every physician in every case in which headache is a symptom, as more information concerning the cause of the patient's malady may be obtained from an ophthalmoscopic examination than from any other single procedure. In the medical schools at the present time we endeavor to teach all students to use an ophthalmoscope and to interpret what they see from this examination. An ophthalmoscope should be one of the cardinal instruments of precision in every medical practitioner's bag. When a papilloedema is accompanied by hemorrhages scattered through the retina, it is an indication that the intra-cranial pressure is rapidly increasing, and when such occurs, prompt remedial measures should not be long delayed. Cuts in the visual fields, as revealed by perimetrie

examination, are frequently of great importance in localizing diagnosis

- f. Mental changes are frequently an aid in localizing cerebral lesions. Waggoner (2) reports, "The brain acts as an integrated whole, and loss of one part makes for unbalanced function of the rest." Lesions in the frontal lobe frequently produce in the patient a state of euphoria, uncalled for joking, confusion, amnesia, and dementia, and the well-known "Foster Kennedy Syndrome," that is, optic atrophy on the side of the lesion and papilloedema on the contra-lateral side. The newer tests for olfactory function, as recently promoted by Elsberg in New York, are also an aid in localizing frontal lobe tumors.

If these rather simple observations are noted by the practitioner when he is dealing with a patient who exhibits the triad of headache, visual disturbances, and vomiting, he will frequently be able to make a very early diagnosis of a "space taking" lesion of the brain, and assist materially the patient's chances toward recovery through the medium of a prompt operation.

The dangers in relation to increased intracranial pressure and distortion of brain tissue are: a. irreparable damage to the brain itself; b. rapidly progressing blindness; c. hemorrhage into or around the tumor; d. death—generally prolonged, sometimes sudden. Early diagnosis and prompt, effectual treatment (generally operative interference) are indicated to avert the above results.

As a rule, space taking lesions of the brain are divided, according to their localization, into two great groups, namely, supra and infra-tentorial; meaning that they are either in the cerebral area above the tentorium cerebelli, or below it in the posterior fossa of the skull. Because of the much smaller spacial content of the posterior fossa, lesions in this area have less room to expand, and because of the close proximity of the vital centers in the medulla, sudden death, instances of which I am reporting, is much more prone to occur with lesions in this area than in those which are supra-tentorial in their location.

The character of the histological make-up of the new growth is generally determined by

microscopical examination of the tissue, but frequently information concerning its morphology may be obtained prior to operation from x-ray and other studies. According to Cushing (3), the relative frequency of the histological types of brain tumors are essentially as follows:

Gliomas, 42.6; pituitary adenoma, 17.8; meningioma, 13.4; acoustic neuroma, 8.7; congenital tumors, 5.6; metastatic tumors, 4.2; granulomata (T. B. & syph.), 2.2; miscellaneous, 5.5. You will note that the largest proportion occur in the glioma group and these are further divided into seven subclassifications, according to Bailey and Cushing (4), and into more groups by other investigators. These groups are named from the histogenesis of the developmental cell elements of the central nervous system. This type of classification of brain tumors is, however, of greater importance to the neuropathologist than to the general practitioner.

The most favorable types of tumors, as regards operative success, are those that arise outside the brain proper and compress or dig a bed for themselves in this tissue, such as the meningiomata. The most dangerous are those that occur in close proximity to the vital centers of the medulla, either within the substance of the pons or medulla, or that compress it from without.

There are some other conditions producing increased intra-cranial pressure and its triad of symptoms which are not due to cerebral new growth or other space taking lesions, such as: a. the "pseudo-tumor" of Frazier, which is essentially an internal hydrocephalus developing from a chronic basilar arachnoiditis; b. the encephalopathic syndromes that occur with hypertensive cardiovascular disease; c. some forms of meningo-vascular syphilis; and d. epidemic encephalitis. Brain abscess and sub-dural haematoma are also "space taking" but not neoplastic conditions that cause trouble both to the patient and the examining physician.

The nine cases that occurred on our services at the hospitals are presented herewith:

CASE 1

L. H. G. Age 28, white female. Admitted to hospital 1/22/37, died 2/16/37.

C. C.: Headache, vomiting, diplopia.

H. P. I.: Illness began in May, 1936. Headache, made worse by any sudden movement of the body such as laughing or coughing, and was described by the patient as "a balloon being blown up;" following which she would vomit and frequently be relieved of pain by this means. In September, 1936, she noticed unsteadiness in walking which gradually developed into a definite ataxia.

P. M. H.: Mastoiditis in 1928 without operation.

Examination: Distinct signs of left cerebellar dysnergia. Spinal fluid pressure 300 mm. water. Vision 6/9 right, 6/5 left, bilateral choked disc, 4 diopters on the right, three diopters on left, fresh acute punctate hemorrhages and engorged veins in both retinæ. Laboratory examinations negative. X-rays negative.

Diagnosis: Left cerebellar lobe tumor.

Result: Death by respiratory failure. The patient was awaiting an operation of suboccipital craniectomy, when she had a sudden coughing spell, during the midst of which she was seen by the nurse to pitch forward, immediately to become unconscious, respirations dropped rapidly from normal to none, heart continued to beat for twenty minutes, and artificial respiration was unavailing in restoring natural breathing. Death.

CASE 2

L. H. P. Age 37, white female. Admitted to hospital 4/22/37, discharged 4/29/37, died 5/14/37.

C. C.: Headache, sensory convulsions, vomiting.

H. P. I.: Two months prior to admission to the hospital the patient began to complain of headaches which were worse in the morning. One month later she experienced attacks of a "feeling of pressure" on the right side of the head followed by a sense of "whirling vertigo," during which she would become faint, but not unconscious, and this would be followed by a feeling as of "warm water being irrigated into the right eye which would then trickle down over the right cheek and into the mouth." This would be followed by an hypaesthesia of the right side of the face, right side of the tongue, left arm, and left leg. These spells would be precipitated by

excitement or any sudden movement that would change the plane of the body. They occurred ten to twelve times a day and lasted five to fifteen minutes. After the spell was over she would have an amnesia for events that happened in her environment during the attack.

Examination: Spinal pressure 320 mm. water. Objective sensory examination negative to all modalities. Slight left lower facial paresis. Tendency to veer to the right in walking. Examination otherwise negative. Vision 6/6 in each eye, bilateral choked disc, 2 diopters on right, with fresh punctate hemorrhages in the retina, and 1 diopter on the left without hemorrhages; a general contraction of the visual fields in both eyes which finally developed into an irregular left hemianopsia. X-rays negative. Laboratory reports negative.

Diagnosis: Right temporal lobe tumor.

Result: Sudden death from respiratory failure. The patient was at home for a visit prior to entering the hospital for operation, and during an attack as described above she suddenly became unconscious, ceased to breathe, heart beat for many minutes after respiration failed. Artificial respiration was not attempted.

CASE 3

O. H. C. Age 22, white female. Admitted to hospital 10/6/36, died 10/8/36.

C. C.: Headache (occipital), vomiting, staggering gait, tinnitus.

H. P. I.: For the previous three years the patient had suffered with the above symptoms in increasing severity. Her symptoms resembled multiple sclerosis to such an extent that despite examination by many neurologists and neuro-surgeons, no definite opinion had been established as to whether one was dealing with a degenerative or "space taking" lesion. During the last six months of her life she developed a marked increase of her ataxic symptoms, and bilateral choked disc of 2½ diopters in each eye with fine punctate hemorrhages on the right. Vision 6/30 on the right, 6/22 on the left. Barany examination was strongly suggestive of left cerebellar lesion. X-ray showed erosion of the dorsum sellae and convolutional pressure atrophy.

Condition was suggestive of a posterior fossa tumor.

Laboratory examinations were negative.

Diagnosis: Posterior fossa cerebellar tumor.

Result: Death from sudden respiratory failure. Patient was in the hospital awaiting operation when she was seen to go to the toilet for a bowel evacuation following a simple saline enema. A short time later she was found unconscious on the toilet seat, not breathing, but the heart beating. She was given artificial respiration, but the heart action soon ceased. Death.

CASE 4

G. H. P. Age 22, white female. Admitted to hospital 2/11/37, died 2/15/37.

C. C.: Headache, vomiting, ocular motor paralysis.

H. P. I.: Patient was well until August, 1936, when she began to suffer with tinnitus in the left ear. In November, 1936, she developed left frontal headache, following which there ensued a ptosis of the left eyelid, diplopia, and projectile vomiting. She had two generalized convulsions in January, 1937. She complained of tenderness in the left parietal area.

Examination: Complete internal and external ophthalmoplegia on the left. No meningitic symptoms. Temperature remained normal. Pulse was 80. Blood count showed 3,220,000 red cells, 10,750 white cells. Spinal fluid showed 420 mm. water pressure, 40 cells, colloidal gold 1112110000, Wassermann negative. There was choked disc of 1½ diopters in each eye and two flame shaped acute punctate hemorrhages on the right retina. X-ray showed an area of bone destruction involving the apex of the left petrous pyramid. The mastoid was hazy on the left, normal on the right.

Diagnosis: Acute infective left petrositis from chronic left mastoiditis producing left posterior fossa abscess.

Result: Death from sudden respiratory failure. This patient was in the hospital awaiting an evaluation of her condition as to whether an operation were possible, when she had a sudden epileptiform convulsion. Heart action became very rapid, respiration very labored to slow, and finally she ceased breath-

ing altogether while the heart continued to beat for many minutes. Artificial respiration given to no avail. Death.

CASE 5

B. C. Age 13, white female.

C. C.: Headache, diplopia, and vomiting.

H. P. I.: Four months before admission to the hospital the patient began to complain of diplopia, which was followed one month later by vomiting, which became projectile in character and occurred every second to third day. Occipital headache then developed, associated with vertigo on changing the plane of the body. It was then noticed that her gait was becoming very ataxic.

Examination: Eyes showed bilateral choked disc, two diopters on the right, three diopters on the left, bilateral nystagmus of the lateral and horizontal type, right external rectus weakness, generalized hyper-reflexia, and ataxic gait. Blood pressure 86/70. Spinal fluid pressure 14 mm. mercury. Barany examination suggestive of midline cerebellar tumor. X-rays negative.

Diagnosis: Glioma of the vermis of the cerebellum.

Result: Death from sudden respiratory failure. Patient was awaiting operation in the hospital. At six o'clock on the morning of the scheduled operation, the nurse noted that the patient seemed pale, then suddenly stopped breathing, heart continued to beat for twenty-two minutes. Artificial respiration was attempted. Death.

CASE 6

H. D. Age 56, white male. Admitted to hospital 6/21/37, died 7/27/37.

C. C.: Headache, pain mid-dorsal region of the back, mental sluggishness progressing to complete disorientation and stupor.

H. P. I.: For three years prior to admission to the hospital the patient complained of the above symptoms in increasing severity until he was finally admitted to the hospital in a condition of extreme mental sluggishness.

Examination: Hyper-reflexia, tremor of the tongue and hands, spastic paraplegia. Pupils reacted sluggishly to light. Spinal fluid 260 mm. water pressure, negative spinal

fluid and blood Wassermann. White blood cells 14,750. Eyes showed no choking, no angiosclerosis, no hemorrhages.

Result: Patient gradually became more stuporous, comatose, and died of general inanition. Autopsy revealed an internal hydrocephalus of long duration which had been caused by a large tumor completely filling the fourth ventricle. This tumor was an ependymoma. Because of the absence of the general as well as the localizing signs of brain tumor in this case, he was looked upon as suffering with some chronic cerebral degeneration. Brain tumor was not suspected until it was discovered at autopsy.

CASE 7

C. R. Age 44, white female.

C. C.: Headache, vomiting.

H. P. I.: Patient was well until three weeks prior to admission to the hospital, when she complained of a severe head pain at the vertex of the skull, generally coming on late in the afternoon, and lasting well into the night, and being associated with vomiting.

Examination: Blood pressure 144/100. Neurological examination negative except for a left facial weakness and bilateral choked disc of two diopters on each side, with fresh punctate hemorrhages in both retinae.

Diagnosis: Brain tumor, presumably posterior fossa.

Result: Death. The patient was in the hospital having studies completed to determine whether she was an operable case, when it was noticed early one evening that she had suddenly become cyanosed; then she stopped breathing. The heart continued to beat for twenty minutes. Artificial respiration attempted to no avail. Death.

CASE 8

H. P. Age 24, white male.

C. C.: Convulsions.

H. P. I.: The patient was a violinist and had been well until 1931, when he had a sudden right-sided Jacksonian convulsion which had an aura as of a "foul taste in the mouth." In 1932 he had a second right-sided convulsion associated with unconsciousness, and several similar attacks in 1933 and 1934. From 1934 to 1936 he suffered from throbbing head-

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aches which increased in severity, and which were always in the right occipital area. In 1935 he noticed "attacks of heat" which would begin in his right toe and gradually ascent upward on the right side to the vertex of the scalp, never spreading beyond the mid-line, and during these attacks there was temporary loss of vision in the right eye. These attacks would last but a few seconds and occurred several times a day.

Examination: Blood pressure 105/62. Bilateral choked disc of 3-4 diopters on the right, 2-3 diopters on the left, with many fresh punctate hemorrhages in each retina. Impaired hearing in the right ear. Hypaesthesia to all sensory modalities on the right side of the face. X-ray showed a large area of skull erosion in the left posterior parietal area (probably from an underlying gliomatous cystic tumor). Red blood cells 6,000,000.

Diagnosis: Left fronto-parietal tumor.

Result: Death. During the patient's stay in the hospital he had a right-sided Jacksonian convulsion, during which his respirations fell to ten per minute, and finally ceased. Heart continued to beat for ten minutes. Artificial respiration was attempted to no avail. Autopsy revealed a mass lesion in the left parietal area which extended anteriorly to within 1 c. e. of the optic chiasm and involved the basal ganglia and the lateral ventricle on the left, and extended posteriorly to within

5 c. e. of the occipital pole. Proved to be a fibrillary astrocytoma on histopathological examination.

CASE 9

P. T. Age 44, white male. Admitted to hospital 9/29/36, died 10/20/36.

C. C.: Vertigo in spells, failing memory, vomiting, occasional attacks of confusion and lethargy.

H. P. I.: The patient had been complaining of the above symptoms for many months.

Examination: X-ray showed signs of increased pressure on the convolitional markings of the skull and there was a shift of the calcified pineal gland to the right and thinning of the skull in the left post parietal area. Eyes showed bilateral choked disc 2 diopters on the right, 3 diopters left, with many fresh punctate hemorrhages in each retina. Examination revealed right lower facial weakness. Tongue deviated to the right. Simple mixed motor and sensory aphasia. Twitching of the right arm and right leg. Laboratory examinations negative.

Diagnosis: Left fronto-parietal tumor.

Result: Death. During a vomiting spell the patient had respiratory difficulty. Respirations fell to six per minute. Patient became cyanosed, there was a rise of blood pressure, and death ensued.

In summation of these cases, the following table is compiled:

Case	Sex	Age	Head-aches	Vomiting	Choked Disc		Vertigo		Long Duration	Short Duration	+ + Spinal Pressure	Lab.	X-ray	Supra-Tentorial	Infra-Tentorial	Sudden Death	Slow Death	Resp. Death
1	F	28	+	+	4D	+	-	-	-	+	+	-	-	-	+	+	-	+
2	F	37	+	+	2D	+	+	+	-	+	+	-	-	+	-	+	-	+
3	F	22	+	+	2D	+	-	-	+	-	+	-	+	-	+	+	-	+
4	F	22	+	+	2D	+	+	+	-	+	+	+	+	-	+	+	-	+
5	F	13	+	+	2D	+	+	-	-	+	+	-	-	-	+	+	-	+
6	M	56	+	-	None	-	-	-	+	-	+	-	-	-	+	-	+	-
7	F	44	+	+	3D	+	-	-	-	+	+	-	-	-	+	+	-	+
8	M	24	+	+	4D	+	-	+	+	-	+	-	+	+	-	+	-	+
9	M	44	+	+	2D	+	-	-	+	-	+	-	+	+	-	+	-	+

From the above case reports it may be noted that the patients were all in the "young and useful" decades of life. All but one had the cardinal triad of headache, vomiting, and ocular disturbances, and of the latter choked disc and especially fresh retinal hemorrhages were present in all but one (this one was the patient that did not die a respiratory death from medullary compression).

SUMMARY

In the last analysis, it is obvious that in patients who are suspected of having intracranial "space taking" lesions and in whom choked disc and especially fresh retinal hemorrhages occur, no delay should be permitted in resorting to surgery. The risk of rapidly oncoming blindness or death from acute respiratory failure caused by medullary compression is great in cases with such eye findings and especially in those where the lesion is suspected of being infra-tentorial or in the posterior (cerebellar) fossa.

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DISCUSSION

DR. M. A. TARUMIANZ (Farnhurst): Mr. President, there is very little that one can add to the excellent paper presented by Dr. Leavitt. There is one thing that impresses me—that something which twenty-nine years ago I had gone through is again re-established in our medical schools. To me, ophthalmoscopy is as essential to general practitioners as the stethoscope in certain cases, and I am more than delighted to know that at the present time students in neurological departments are taking interest and they are forced to know something about the eye-grounds. That will be quite beneficial to our future diagnoses.

Now, as to early diagnosis, there is no question that some of the cases could benefit by operative procedures and we are very fortunate that in the last year and a half we established at the State Hospital a Neurosurgical Department. Dr. Grant, with his assistant, comes once a month and helps the clinics

there, and every physician is invited to send his case, which has been studied, or if they are unable to make such a study, to send it to our hospital for such neurological study as is necessary to present the case to the Neurosurgical Clinic.

Thus the indigent patients of the state will have some chance for surgical procedure. I realize that non-indigent patients are well taken care of, but when it comes to indigent patients from down-state, surely they will not be able to go to Dr. Leavitt or Dr. Grant, or other neurosurgeons. Obviously, this would be some help to the general practitioners.

I have found in the last year and a half, since the establishment of the clinic, that quite a few physicians have definitely diagnosed cases of brain tumor, which certainly shows definitely that our general practitioners are not so unaware of the symptoms as some might feel.

I would like to ask Dr. Leavitt whether he could tell us what is the percentage of good results from operative procedure in those cases that have not been delayed in diagnosis and operative procedure.

DR. LEAVITT: The good or bad results, of course, depend upon the nature of the lesion which one is dealing with, and the location of the lesion, and with those two facts in mind, how long the lesion has been active.

For example, with the spongioblastoma, which is a very malignant form of tumor, the outlook is very decidedly bad. Those tumors almost seem to grow as you watch your patient, and produce almost day by day different changes in symptomatology. Of course, operation in that type of tumor must be very prompt, and it is such a markedly infiltrating and malignant type of growth, formerly called the sarcoma of the brain, that the results in those cases are extremely bad.

There are tumors which grow more slowly, and are isolated and circumscribed, of which a typical example is the meningioma, which hollows out for itself a bed in the brain. Although that bed is at times extremely vascular, and danger of hemorrhage is very great, if the tumor is removed the results from the removal remain permanently quite good if the patient survives the hemorrhagic danger of the operation.

Of the tumors that are supra-tentorial and infiltrating, it is possible to enucleate, or remove tremendously huge areas of cerebral tissue. In fact, there has been removal of the entire hemisphere down to the basal ganglia, with the patient surviving. Dr. Gardner, who used to be associated with Dr. Frazier at the University Hospital, did such an operation in the early years of such a procedure, and reported the same in Philadelphia with moving pictures, and it was really remarkable to see what that woman could do with her motor system and with her mentality, although her right cerebral hemisphere had been entirely removed.

Removal of certain lobes, particularly in the frontal area is being done quite frequently. It is being done by Dr. Penfield of Montreal, and Dr. Grant and Dr. Fay of Philadelphia, and, of course, Dr. Frazier did some of those operations.

However, when you get down into the brain stem area, it is a different proposition. A very nice tumor to operate upon in most instances is the acoustic neuroma, which is a tumor arising as a perineural fibroblastoma, around the acoustic nerve, which causes deafness and the signs of compression in the cerebellopontine angle. That tumor either gives very good results from operation or very bad. On account of the close proximity of the facial nerve, and of the large vessels, and of the brain stem, particularly the medulla, one must be extremely careful in the manipulation of that tumor, and they are frequently sucked out with an aspirator instead of being removed. As a consequence of this, there is a tendency to a recurrence of these growths.

I have one patient from Reading, a woman who has had her second operation and is now back in the hospital again for determination as to whether she shall have her third operation for removal of the acoustic neuroma. She is a very charming person, and it is very sad to see the condition she gets into from this tumor. In many instances results from the operation on this growth are very good.

In the posterior fossa, however, the typical tumor that occurs in childhood or sub-adolescence is the midline tumor or medullo-blastoma, of the vermis of the cerebellum, which is a highly cellular, rapidly growing

tumor, coming from blastomatous elements in the development and genesis of the cells. This is a tumor which has a habit of giving contiguous metastasis. Sometimes you see this metastasis running all the way down the length of the spinal canal, clear down to the tip. They metastasize throughout the brain also. It is an infiltrating growth which produces early symptoms of increased intracranial pressure because of production of internal hydrocephalus and it is the hydrocephalic symptoms which first draw the attention of the parents or the doctor to the fact that a tumor is present in that location.

In childhood, the separation of the sutures of the skull, with the typical cracked pot sound on percussion, with or without changes in the optic disc, causes the release of pressure, by the release of the sutures of the skull. Distinctly cerebellar signs occurring in youth are nearly always indicative that you are dealing with that very common tumor, the midline cerebellar medullo-blastoma of childhood. If your growths are in the latter class, however, they are possible of irradiation in some cases. These are looked upon as being radio-sensitive, and are frequently kept in abeyance by radiation treatments.

However, I have yet to see a patient who has a midline or a lateral lobe cerebellar infiltrating tumor who has received radiation, and who has ever been, to my mind, materially benefited by such therapy, although it is reported in the literature constantly.

I am very pessimistic about the results of either direct surgery as a curative measure, or radiation as a curative measure in tumors, granting that they are space taking, infiltrating lesions.

Tumors due to inflammatory tissues, such as the tuberculoma, are becoming progressively more and more infrequent. It is a great rarity to find a tuberculoma, now, due to our general treatment of the tuberculosis cases.

To find a syphiloma or a gumma in the intracranial area also is becoming a rarity. Once in a while a surgeon operates and finds one of these tumors which proves to be a gumma. He always feels rather chagrined that he operated on such a case rather than giving the usual type of therapy. Those two types

of tumors used to be very common. I think way back in 1898 they were the most common of all tumors seen. Now they are the most uncommon of all tumors we encounter.

So in answer to your question—I have talked a long while—the prognosis depends on what the nature of your growth is and where it is.

INJECTION OF STERILIZED OIL INTO JOINTS FOR DIAGNOSTIC PURPOSES

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For some time now iodized poppy seed oil (lipiodol) has been used in connection with the diagnosis and localization of pathological lesions of and about the spinal cord.

The ease of visualization of the oil, its satisfactory sterilization, and its little or no after effect suggested the feasibility of using it in some of the major joints to aid in the diag-

nosis of suspected lesions. The joint selected was the knee. In the cases to be reported a variety of conditions were present. In only one of these cases was the end result satisfactory. In the other cases there were persistent debilitating symptoms, sufficient to discourage the continuance of the procedure.

CASE I.

This single satisfactory case was that of a patient seventy years old, a physician, who, in spite of old chronic infectious arthritis in the knee, attended to his medical duties, though obliged to limp badly with bent knee, the joint of which was hot, swollen, red, and extremely painful. In treatment the knee was first aspirated and then injected with the lipiodol with the hope of obtaining a lubricating film between the joint surfaces. Within a reasonable length of time after the injection the patient was able to walk with his knee in its normal position, with no pain, no swelling, no discomfort, although x-rays showed an extensive destruction of the joint surface.

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Fig. 1. Showing extensive hypertrophic arthritis of knee. Opaque oil has been injected into joint.

Technique: The spot chosen for injection of the oil was just above the patella in the position of eleven o'clock. After a local injection of novocain, the lipiodol (ten cubic centimeters in most of the cases, although in two cases five cubic centimeters were sufficient) was slowly forced through a large bore needle at the site prescribed. Care was taken not to thrust the needle into the periosteum of the femur or into the patella. The injection produced momentary discomfort from the stretching of the tissues, a discomfort which soon quieted.

Within an hour after injection an x-ray picture was made of each case. The oil distributed itself in all cases throughout the various bursal sacs or compartments of the joint and visualization of the outline of the structures of the joint was excellent.

CASE II.

The second case injected was that of a suspected internal derangement of the knee due to a torn cartilage. Clinical symptoms pointed to the internal meniscus. The patient was unmarried, aged thirty-eight. She gave

a history of having fallen and twisted her left knee. She localized the pain over the region of the internal semilunar cartilage and she was unable to completely extend the leg on the thigh. She admitted to an atypical type of locking by way of a slight "catch" in the joint. X-rays taken prior to the injection of the lipiodol were negative for demonstrable pathology. This patient was insistent upon a positive diagnosis before she would consent to surgery. Injection of the oil seemed justifiable. Ten cubic centimeters were injected and an x-ray was taken. The displaced and torn internal meniscus was demonstrated and operation was agreed upon. A typical "bucket handle" type of torn cartilage was removed from the medial side of the joint and the patient made an uneventful convalescence. Motion was begun on the seventh post-operative day. Routine physical therapy was carried out and exercise was advised. The patient cooperated well. In spite of this regime the knee did not return to normal motion. There was stiffness and soreness and some thickening of the surrounding tissues. Six



Fig. 2. Post-operative appearance of knee joint showing irregular outline of tibia and apparent organization of oily patches.

weeks after the operation a gentle manipulation of the knee was done under an anaesthetic. Painstaking physical therapy was again carried out and again the joint stiffened. (There were no foci of infection.) Subsequent x-rays showed the presence of the oil but no articular changes. Other x-rays were taken at intervals which showed a gradually advancing organization of the oil patches simulating a case of myositis ossificans.

The patient consulted another doctor and was advised to continue conservative measures. It is now four years since the original injection and operation and the joint is still an unsatisfactory hinge.

CASE III

The third case was also a suspected internal meniscus derangement in a woman of twenty-nine. This patient planned litigation and it was known that such action was justifiable. Because of this fact, together with a typical history of a fall and a twist-

ing of the knee followed by frank locking, pain, swelling and disability, it was thought that the injection of the lipiodol and the subsequent x-ray would give the best possible clinical picture. The post-injection x-rays showed the torn internal semi-lunar cartilage clearly and the initial diagnosis was born out shortly thereafter at the operation. This patient also made an uneventful recovery and the insurance carriers paid the liability without hesitation. About three months after the operation this lady began to complain of pain, swelling and weakness in the knee joint. The blood Wassermann was repeated and found negative. More x-rays were taken. Organized oily patches were present.

Her range of motion was nearly normal but she walked with a limp. A neurological examination was negative. It is now three and a half years since the injection and operation, and although the patient is very much better, she still complains of discomfort.



Fig. 3. Preoperative x-ray of knee visualizing the internal semi-lunar cartilage.



Fig. 4. Showing persistent oily patches several months after operation.

CASE IV.

The fourth case had had a diagnosis of osteochondritis dissecans made prior to my examination. New x-rays substantiated this diagnosis. This patient was a woman of thirty-five who had complained of pain and stiffness for years. She had tried physical therapy and support. Injection of the lipiodol was advised in the hope that it might create a soothing lubrication and tend to ameliorate her symptoms. She had had three negative Wassermann reports. After waiting two months following the injection without a subsidence of discomfort, the knee was operated upon and eighty-one loose bodies were removed. Both semilunar cartilages were thin and frayed and they were excised. Early motion was begun, accompanied by physical therapy. The joint was protected with a brace. In spite of these precautions the knee stiffened and remained extremely painful. X-rays taken four months after operation showed the patchy organization of the oil similar to the cartilage cases described above. She still has a disabling joint after four and a half years.

Although this is not a large series of cases, the uniformly unsatisfactory sequelae definitely justify the discontinuance of the procedure even though the additional evidence gained by the injection of the sterilized iodized poppy seed oil is definite and helpful in making the pre-operative diagnosis.

1824 Spruce Street.

May Day—Child Health Day

Suggestions for Observance

Child Health Day activities are sponsored by the Children's Bureau, U. S. Department of Labor, at the request of the state and provincial health authorities of North America, in accordance with the Congressional Resolution of May 18, 1928, which authorized the President to proclaim May Day as Child Health Day.

Slogan: Speed children on the road to health.

Objective: Every community to make full use of its resources in order to insure to children safe birth, normal growth, and protec-

tion against disease and accident in their progress from infancy to maturity.

For information on State programs write to State May Day Chairman, State Department of Health.

The American Neisserian Medical Society

The Fourth Annual Session of the American Neisserian Medical Society will be held in Washington, D. C., on May 16 and 17, 1938, in the Public Health Auditorium, located at 19th Street and Constitution Avenue, N. W.

The session will open with a symposium on sulfanilamide. Perrin H. Long, M. D., of the Johns Hopkins Hospital, will deliver the principal address. Dr. Long's work puts him in the position of being the country's leading authority on the chemistry, mode of action, and clinical use of sulfanilamide.

Members are urged to take an active part in the deliberations of the section meetings.

The second day will open with the business meeting. The final afternoon will be devoted to the presentation of some extremely interesting papers.

Economy In Medication

By economy in medication Bernard Fantus, Chicago (*Journal A. M. A.*, March 19, 1938), does not mean the use of inferior remedies. for the first principle of economy in prescribing is that the most efficient remedy is likely to be the cheapest. The second principle in the economy of medication should be: Among drugs of equal efficiency, choose the least expensive. What this might mean in the case of hypnotics and analgesics is illustrated by tables. Two of the three most efficient hypnotics, namely, choral hydrate and barbital, are also the cheapest. In such large institutions as the Cook County Hospital, the saving resulting from cooperation between the prescribing physician and the dispensing pharmacist might easily run into huge sums. Even in private practice it pays to economize in medication. Some physicians are nothing less than spendthrifts and wasters when it comes to prescribing. Economies can be practiced in the preparation of hypnotics, analgesics, disinfectants, placebos and in the drug room. These are discussed separately.

EDITORIAL

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APRIL, 1938

No. 4

Life AND LABOR

The very progressive and increasingly popular weekly, *Life*, in its issue of April 11, 1938, contained a four-page story derived from the medical film, "Birth of a Baby." The publishing of this story brought prompt and vociferous protests from many quarters; the magazine was banned from the newsstands in many cities and in at least one whole state, unless this story was torn out; and it was later debarred from the mails, unless likewise deleted.

We think *Life* made a mistake. The film from which its story was derived is an excellent educational film, prepared by medical men under scrupulously careful control, and has already brought a vital message to thous-

ands of eager laymen. The point is, these laymen did not *have* to see the film as part of an evening's entertainment; they saw it and it alone, as a voluntary action, and they knew ahead of time just about what they were going to see. Further, children were excluded.

Not so with a magazine. One buys it because one likes its general contents, and has the privilege of skipping what one dislikes. This skipping process calls for mental maturity. But alas! We cast not our magazines into the furnace immediately the mature minds have perused them; rather, we leave them about the house more or less promiscuously, where the prying eyes of the immature are almost certain to linger, especially upon such an absorbing pictorial as *Life*. Evidently, *Life* itself seriously questioned the propriety of its action, for it published the story as a central spread that could be torn out without injuring the rest of the magazine. The normal child begins to ask where babies come from at four to six years of age, and mother should explain that, like Tabby's kittens, they grow in the body of the mother, and then adroitly change the conversation. On sex questions, the child is entitled to know, bit by bit, the truth, from its mother—not some gutter version from older children. But the pictorial portrayal of mother's truths is for slightly older minds to see.

Aside from the official censorship, and disclaiming any tendency towards Puritanism or prudency, we believe that *Life*, with the best of intentions, made a mistake. We thank *Life*, however, for the invaluable publicity it has given to the film, which we hope will be seen by the millions who yet need to see it.

Our congratulations to Milford. The recent dedication of their new Memorial Hospital is an epoch-making day for lower Delaware. We know that the new facilities will render a much-needed service.

The new Chicago Tumor Institute was opened in March. It offers consultation service to physicians in the diagnosis and treatment

of cancer, and radiation facilities for cancer patients. The institute also proposes to conduct research and to offer training to physicians who may wish to qualify as specialists in the study and treatment of this disease. It is our understanding that patients will be treated regardless of their ability to pay.

The scientific committee is composed of Max Cutler, M. D., Director, Sir G. Lenthal Cheatele, F. R. C. S., Henri Coutard, M. D., Arthur H. Compton, Ph. D., and Ludvig Hektoen, M. D.

Hats off to our hoary ancestor, the *Journal of the A. M. A.*, which refers (editorial, April 9, 1938, page 1195), to its issue of March 28, 1136. This ancient and honorable date is eighty years before the Magna Carta; Stephen of Blois was on the English throne; Louis VI (the Fat) was waddling about France; Leopold IV succeeded Albert II in Austria, while Bela II was King of Hungary, and Gothaire ruled Germany. In Rome sat Pope Innocent II. Even in old Cathay the Song dynasty was not two centuries old, and the fabled Ming dynasty was yet unborn, by another two centuries and more. Verily, verily old *JAMA* hath seen a bit of history in his day!

WOMAN'S AUXILIARY

From the National President,
To the Members of the Auxiliary:

Still unable to come to earth after two months' visit with you, I am back at a desk piled appallingly high with an accumulation of mail. I should have liked the opportunity to write in detail of my impressions of the state auxiliaries, their fine women and splendid organizations that I have had the pleasure of visiting since my last letter to you, but that is beyond the space and time limits of the moment.

My first meeting was at Trenton, N. J., with the state executive board, with whose reports of their planned work I was very much impressed. The very capable Mrs. Salasin, president of the New Jersey Auxiliary presided, and it was so pleasant chat with Mrs. Rogers, the past state president with Mrs. Lippincott, our chairman of public relations, and with Mrs. Surran, Atlantic City convention chairman, and with many others. The executive meeting was followed by a lovely luncheon at which I spoke on auxiliary work. This meeting was attended by the officers of the New Jersey Medical Society, by the advisory board members, and by members of the Trenton Auxiliary.

Through the kindness of Mrs. Lippincott, I was taken to Philadelphia to spend the night with my friends, the Frank Borzells, and then up early the next morning for the Philadelphia Auxiliary's Reciprocity Day, which, true to tradition, was a

grand meeting. Delegates were present from all lay groups, and what a limitless field was offered for the dissemination of authentic health information, and for the making of a rational attitude toward the science of medicine and the protection of public health! Mrs. Bachman, as usual lovely, poised and capable, presided. The session was preceded by luncheon at the Warwick, where I enjoyed the company of Mrs. Odanatte, Mrs. David Thomas, Mrs. Wilkinson, Mrs. Percival, and other pleasant women, most of them known to you.

I arrived in Detroit early the next morning, and was taken to Mrs. Whitney's home for breakfast. I took this opportunity of discussing the finances of the National Auxiliary with her. Mrs. R. V. Walker, president of the Wayne county auxiliary, entertained with a delightful luncheon at the Women's Club, at noon. Later, we attended the Bring Your Husbands dinner, and how I wish you all could have enjoyed it with me—the gorgeous appointments and the inspirational music, presented chiefly by a glee club composed entirely of doctors. The president of the Wayne county Medical Society, Dr. Umphrey, paid high compliments to the work of the women, and I had the pleasure of bringing the main message of the evening, which of course was of the auxiliary.

That night I left for Chicago. On Thursday morning I had a conference with Dr. West at the American Medical Association Headquarters concerning my various scheduled visits. As usual, he gave me most kindly help and advice. All of the A. M. A. officers have been extremely kind in offering me their cooperation—especially Dr. Fishbein, Dr. Bauer, Dr. Leland, Dr. Woodward and Mr. Cargill.

During the afternoon, Mrs. Simonds and I outlined the March News Letter, and in the evening we joined other friends to see Helen Hayes in "Victoria Regina." I almost missed my train over this.

The following morning found me in Minneapolis, and while I was registering at the Hotel, our good friends, Mrs. Blake and Mrs. Catlin arrived. After breakfast we hurried over to the Women's club for the state board meeting. This inspirational session was typical of the good work the Minnesota Auxiliary has been doing. Their Hygeia, public relations and philanthropic work all are outstanding. Mrs. J. F. Norman, state president, is a splendid leader who has accomplished much for the Auxiliary during her administration. After the board meeting I addressed a luncheon meeting attended by several hundred women. Then, with a free evening, I was able to confer with the State officers and chairmen. But Saturday was a busy day. I addressed the St. Paul Auxiliary at its luncheon at the Town and Country club, an enthusiastic meeting for which Mrs. H. E. Boland, the president, deserves much credit. This was followed by a delightful tea at the home of Mrs. Martin Nordland.

I spent a pleasant week-end with Mrs. Blake, who has been such a comfort and help to me. At dinner Sunday, we were joined by Dr. Catlin of Buffalo, Missouri, and later, Dr. and Mrs. W. B. Roberts to take me about beautiful Minneapolis and to view their winter sports. Mrs. Roberts is president-elect of the Minnesota Auxiliary. There was tea at the Roberts' home, and then a pleasant evening with Dr. and Mrs. James M. Hayes. Dr. Hayes is the able and energetic president of the Medical Society of Minnesota. On Monday I lunched with the officers of the State Medical Society and their legislative com-

mittee, speaking to them on the public relations and legislative work of the auxiliary. Then I rushed from the luncheon to a tea at the charming home of Mrs. J. J. Ryan of St. Paul where I was privileged to address a large number of members and friends. Tuesday, I was luncheon guest of Dr. Charles B. Wright, a member of the Board of Trustees of the A. M. A. and then was taken on a tour of the University of Minnesota Medical School.

At Sioux Falls, South Dakota, I met many of the women who launched their auxiliary organization in 1910. Their able and energetic president, Mrs. Westaby, was most hospitable to me. Mrs. T. J. Billion gave a comprehensive resume of worthwhile activities of their auxiliary. I was especially delighted with their public relations work. That evening, I was invited by the doctors to address their district meeting.

At Spokane, I was greeted by Mrs. Schulte and was taken to her attractive home for my stay in the city. After a day of rest, I began an interesting schedule, opening with luncheon with the officers and chairmen of the Spokane auxiliary, followed by tea at the home of Dr. and Mrs. Countryman and the Bring Your Husbands dinner at the City club that night, attended by a splendid group of doctors and their ladies. I was up at dawn to drive with Dr. and Mrs. Schulte to Seattle by way of the Grand Coulee Dam. We breakfasted at the dam at seven o'clock, then drove through the glorious country of the Valley of the Grand Coulee and on through the snow-packed pass of the Cascade mountains to reach Seattle at five o'clock. We went immediately to the home of Mrs. Otis F. Lamson to dress hurriedly for a buffet supper at the home of Mrs. Roscoe Moseman, there to meet officers of the State Medical Society and State Auxiliary. Saturday morning, at the state board meeting, I was most impressed by the fine work done in legislation, public relations and Hygeia. That night, I spoke at the Bring Your Husbands dinner at the Washington Hotel. This was one of the most delightful meetings of my trip. The next day I journeyed to Tacoma to talk at a tea given by Mrs. Whitacre and Mrs. A. W. Howe at Mrs. Howe's home, then back to Seattle to dinner at the Olympia Hotel with Dr. and Mrs. Lamson as hosts, and on my way that night to Portland.

There was a meeting with the Oregon State executive committee in the morning and luncheon in the Medical Center attended by women from all parts of the state. Dr. Ralph A. Fenton, a member of the Board of Trustees of the A. M. A. and a real friend of the auxiliary, addressed the group. I was quite impressed by this meeting. The men said that due to the women's activities, the basic science law of Oregon, one of the best in the land, was made possible. This was followed by a meeting of the Multnomah county auxiliary at the home of Mrs. Rosenberg and dinner at the home of Dr. and Mrs. Bendshadler to meet the officers of the state medical society and their wives. Here I found it necessary to talk again. The next morning I made a check-up of national printing and supplies with Mrs. Lamb and I had the pleasure of lunching with the board members of the Oregon Auxiliary, and of having dinner at the University Club as guest of the Oregon Medical Society.

At ten o'clock I left for San Francisco to be a house guest of Dr. and Mrs. Hobart Rogers and to make preliminary plans for the convention next June. Mrs. Rogers is the able and delightful

president of the California Auxiliary and is known to most of you. These were busy but glorious days. Every minute was packed with action. I know you all will love California and its charming, hospitable people. I am not going to tell you of the convention program now; the next news letter will tell you all about it. The first morning we had breakfast at the home of Mrs. C. H. Hall of Oakland, then on our way to the office of Dr. Howard Morrow, San Francisco, convention chairman, where a preliminary meeting of the convention committee got under way. We had lunch with Mrs. Morrow, a fine woman and an able one. Later on at a tea in the home of Mrs. J. C. Geiger, the lovely convention chairman, I met the various members of the convention sub-committee to map plans for other meetings.

Saturday, in company with Dr. and Mrs. Rogers, I drove to Sacramento to attend an auxiliary meeting and the Bring Your Husbands dinner. The next day, I had a delightful trip, beginning at dawn, through a land of sunshine and flowers, through quaint Monterey and over the 17 mile drive to Carmel-by-the-Sea, and from there to Santa Cruz for the night, an unforgettable journey. We were up again at dawn so we might enjoy the beauty of the "Red Woods" through the big basin section, and back to San Francisco. After two hours work with the convention committee, there was a meeting with the San Francisco auxiliary executive board at noon, then back to work with the committee until evening and dinner with Dr. and Mrs. Morrow, who entertained the auxiliary convention officers and their husbands. This dinner was both delightful and unusual, and offered a perfect ending for a demanding day. The next day, I went to the auxiliary meeting, attended by hundreds of earnest women. The meeting was presided over by Mrs. Hans Barkan, president of San Francisco Auxiliary and was a notable affair. I am sure the women of California will leave nothing undone to make your stay with them a memorable one. That evening, Mrs. Geiger, Mrs. Sargent, the very efficient convention vice chairman, Mrs. Becker, entertainment chairman, Mrs. Rogers and myself gathered up ends from another day. I met with Dr. Warnshuis, executive secretary of the California Medical Association who was very helpful and considerate. We checked all rooms for meetings at the Fairmount Hotel and made final arrangements for the convention. That night, I attended a dinner given by Dr. and Mrs. Alexander at the City Club at Oakland.

The next day, after a last discussion with the committee chairmen, I left for Los Angeles. There, I had breakfast with Mrs. James F. Percy, and how good it was to see her. After a brief rest, there was a pleasant meeting and tea at the magnificent home of Mrs. Eric Lawson. That evening I was guest of Dr. and Mrs. Clifford Wright at dinner, after which we had the pleasure of viewing the races. Mrs. Wright is a charming and capable person and president-elect of the California Auxiliary. The next day I was privileged to meet with many of the doctors and auxiliary members and talk over problems of mutual interest. Then there was one of the most delightful interludes of my entire trip . . . a dinner with Dr. and Mrs. Percy as hosts in the Mexican Quarter. Sunday brought a drive through Hollywood and on out over the rolling hills to the home of Dr. and Mrs. George H. Kress on the famous Uplifters canyon. Dr. Kress is editor of "California and Western Medicine" and

I was pleased to have this opportunity to talk over auxiliary matters with him.

That night I entrained for Tucson. I wish all of you could have been with me at the Tucson meeting to hear some of the women who had driven three hundred miles to attend. Every quarter of the state was represented. The lovely state president, Mrs. Patterson, was quite ill, but her organization spoke for itself. More than one hundred women were present for the luncheon. I drove out to see Mrs. Patterson and then, through the kindness of Mrs. Thomas, went on out to a ranch for dinner with some Altoona friends and to my train for El Paso. There I had breakfast with Mrs. Homan and a lovely Spanish luncheon with the El Paso auxiliary at noon and dinner at the home of Dr. and Mrs. Lidell to meet the husbands of members of the El Paso auxiliary. I left that night for Albuquerque, New Mexico, where Mrs. Homan's daughter, Mrs. Guinn, greeted me upon arrival, and I had the delightful surprise awaiting me of being the house guest of Mrs. J. C. Hannett, a former Altoona girl. After breakfast we drove to Santa Fe.

There is no auxiliary at Santa Fe, but a large group of fine women attended luncheon at the famous La Fonda hotel. I talked to them of auxiliary work and I am sure we shall hear from them shortly because of the interest they manifested. A wonderful trip followed through Santa Fe where we were carried back to the days of the conquistadors and viewed many old landmarks of pioneer times, including the church of San Miguel with its bullet-riddled walls and its great beams over three hundred years old. We went back by way of the Indian Reservations at Santo Domingo. A brief call on an Indian family and a tour conducted by our hostess through the reservations enlivened our visit. We were startled when we discovered it was five o'clock and we were due at dinner at Albuquerque at seven. But we were there on time to meet the officers of the auxiliary and of the medical society of New Mexico. The following day I attended an auxiliary meeting and that evening addressed the medical society at St. Joseph's hospital and then on to my train at midnight for El Paso. I breakfasted with the Ralph Homans and had luncheon with the J. J. Gormans and attended the Bring Your Husbands dinner that night. This was a pleasant affair attended by a large number of doctors and their wives. Colonel Edwards and his charming wife and Colonel Devoe and his lady, medical officers from Beaumont General Army Hospital and Fort Bliss were among the interesting people to whom I was introduced. I was privileged to be the speaker of this meeting.

The next morning I went over to Juarez, Mexico, to browse through the Mexican markets and to purchase a few trinkets for my children. I had luncheon at the home of Mrs. Turner, with the officers and chairman of the auxiliary and then to dinner that night with Dr. and Mrs. Will Rogers to meet a number of their delightful friends. I boarded my train at nine that night for Abilene, Texas.

There I was greeted by Mrs. Snow, president of the Abilene auxiliary, and her husband. Later, we went to church, a beautiful and impressive service. I lunched with the Snow family and a few friends and then went to the broadcasting station for an address.

That evening I talked to the faculty of Simmons College at the home of Dr. and Mrs. Snow.

Monday, had breakfast with Mrs. Morgan Jones, president of the Federation of Women's clubs of Texas, at her home. There was a most delightful courtesy and I was given the opportunity of meeting the fine women who are doing real work in business and the professions throughout that section of Texas. The reciprocity meeting of the women of the Abilene auxiliary was one of the most outstanding I have ever attended. Every group was represented—churches, welfare organizations, and newspaper people. This meeting was broadcast. I was joined here by Mrs. W. R. Thompson, president of Texas Auxiliary, who deserves high compliment for the fine work being done in her state. I returned with Mrs. Thompson to her home at Ft. Worth, where I was made comfortable for a day of rest, which by this time I really needed. The next afternoon I attended the Washington birthday party of the D. A. R. Here hundreds of women from all walks of life were gathered and I was glad of the invitation to speak to them as your representative. That evening there was a dinner at the Yacht Club with the Fort Worth doctors and their wives.

The next morning I left for Dallas and was entertained at the charming home of Mrs. H. Leslie Moore. Here I was greeted by and had a most delightful visit with our own Mrs. S. C. Red who had come all the way from Houston to meet me. Of course Mrs. Red is known to all for just such acts of courtesy. Luncheon was followed by a magnificent meeting at the Academy of Fine Arts. Here I had an opportunity to talk to the women of Dallas. This was followed by tea in the foyer of the Academy. It was so good to have a visit with Mrs. Edward H. Carey. I was happy to be assured that our Mrs. John O. McReynolds was improving. Mrs. Red accompanied Mrs. Thompson and myself back to Ft. Worth and we hurried to dress for the Fort Worth Bring Your Husbands dinner held in connection with the Ft. Worth Auxiliary Hobby show. I was privileged to speak at the dinner meeting here. The next day I had a quiet visit with Mrs. Red and caught up on my correspondence. The next day I had luncheon at the beautiful home of Mrs. Dinsmore and was taken on a trip over the lake in her motor boat. Another delightful occasion was a dinner at the City Club given by Dr. and Mrs. Holman Taylor, Dr. Taylor is Secretary of the State Medical Association of Texas and Editor-in-Chief of the Texas State Journal of Medicine.

I departed at eight o'clock that evening for Tulsa, Oklahoma. After attending early church service, I had a pleasant day with old friends of our family, many of whom live in Tulsa. Dr. Charles Dillon and Dr. Kech were classmates at the University of Pennsylvania, and the Dillons held open house in my honor. Monday I met the officers of the Oklahoma Auxiliary. The meeting was followed by luncheon attended by several hundred women. I had a quiet early dinner with friends and then left for Topeka, Kansas, for my next meeting.

It was so good to meet the officers of the Topeka Auxiliary upon my arrival. My first appointment was with the executive secretary of the Kansas State Medical Society who gave much praise to Mrs. Urie, president of the Kansas Auxiliary, and to the women of her organization. I had dinner that night with my friends, former Governor and Mrs. Alfred M. Landon, at their lovely country home. The next morning I attended a meeting of the Kansas State Auxiliary Executive Board and then on to speak to the State Medical Society Executive Board. The doc-

tors were most gracious and are interested in the work of the auxiliary. The Topeka auxiliary was hostess at luncheon. This was a splendid meeting.

I had dinner with the State Auxiliary Officers and left for Kansas City, Missouri, that night. Mrs. Herbert L. Mantz greeted me and as Mrs. Mantz does everything well, not the slightest detail that would add to my comfort and enjoyment while a visitor in Missouri was overlooked. With Mrs. Werner, president of the Missouri Auxiliary, whom you all know as an able leader, and with our own Mrs. McGlothlan, I was guest of our good friend, Mrs. A. W. McAlester. A board meeting at the home of Mrs. Mantz was followed by a lovely meeting attended by more than two hundred women at the home of Mrs. Sutton. How I enjoyed seeing Mrs. Hoxie, Mrs. Long and the fine women of Missouri! I wish you all could read their excellent bulletin—a quarterly publication. I know you would enjoy it as much as I did. I deeply regret that it was impossible for me to accept the kind invitation of the St. Louis group to attend its meeting on March eight, but previous arrangements with the A. M. A. office made it necessary for me to be in Chicago on Saturday, March fifth. I reached my home the following day.

Thus ended the longest journey I have made for the National Auxiliary during my administration. In this letter, I have not attempted to write another "My Day" or "Pepys' Diary." I have written at length of the auxiliaries which I have visited because I have wished to share with you the joy of being your President.

Sincerely yours,

Altoona, Pa.

MRS. AUGUSTUS S. KECH.

MISCELLANEOUS

Alcoholic Intoxication: Its Diagnosis and Medicolegal Implications

SIDNEY SELESNICK, Boston (*Journal A. M. A.*, March 12, 1938), points out that blood appears to be a medium for analysis offering the best opportunity for giving the alcohol suspect as fair an appraisal of his degree of alcoholism as is possible, in that (1) the amount of "non-alcoholic" oxidizable material in the blood is negligibly small, (2) the blood alcohol concentration always reflects the degree of alcohol saturation at the moment the sample of blood is obtained, (3) unlike other fluids of the body blood is always available and (4) its extraction does not necessitate the active participation of the subject. It is becoming more and more obvious that drunkenness is no longer to be considered synonymous with alcoholic intoxication. Though alcoholic intoxication is an inseparable component of drunkenness when the latter exists, it is to be considered, rather, in a biologic sense. Small amounts of alcohol are capable of causing considerable disturbance with those activities requiring rapid integration and accurate coordination without producing any gross signs that might lead even a competent observer to suspect drunkenness. As automobile driving, for example, demands at all times a high degree of rapid integration and accurate coordination, it is important to improve the criteria ordinarily employed in the determination of alcoholic intoxication. From a group of fifty unselected cases admitted to the alcoholic ward of the Fifth Medical Service of the Boston City Hospital, the following general conclusions were drawn: Except for an odor of alcohol on the breath, clinical

manifestations of intoxication do not appear until the blood alcohol exceeds 0.2 per cent; when the content is from 0.2 to 0.3 per cent, evidence of intoxication was definite and characterized chiefly by a change in affect, the patients being loquacious, crafty, witty, silly or belligerent, with some disturbance in locomotion; when it was from 0.3 to 0.4 per cent, walking was very unsteady or impossible, speech was thick, and drowsiness was the rule; when it was from 0.4 to 0.5 per cent there was no voluntary activity, deep stupor supervening from which the patient could be roused by painful stimuli; when it was above 0.5 per cent practically all patients were in alcoholic coma. There was considerable overlapping in all the groups. What is most important from the medicolegal aspect is elucidation of subclinical intoxication or alcoholic intoxication in the biologic sense without any gross manifestations of drunkenness. The fact that some individuals are able to imbibe large quantities of alcohol without showing any apparent signs of intoxication has been a major argument against the acceptance of alcohol levels of body fluid as criteria for degrees of intoxication. In a recent review of the literature Newman points out that the nature of alcohol tolerance is still a controversial subject. The older literature leaned toward increased oxidation of alcohol to explain it. Recent studies seem to prove this theory untenable. Subclinical intoxication—or alcoholic intoxication in the biologic sense without any gross manifestations of drunkenness—can produce sufficient interference with psychomotor activity and neuromuscular coordination to render such an affected individual a potential public menace. Blood alcohol determinations can detect these degrees of alcoholic intoxication which ordinarily escape the detection of competent physicians. Criteria, therefore, must be established which include body fluid alcohol determinations as part of the diagnostic armamentarium. If the law will recognize the importance of blood alcohol determinations in accidents having medicolegal aspects, the offending individual will cease to have the liberty of refusing to allow the extraction of blood.

Rapid Chemical Test for Intoxication

R. N. HARGER, E. B. LAMB and H. R. HULPIEU, Indianapolis (*Journal A. M. A.*, March 12, 1938) state that none of the existing tests for alcoholic intoxication can be performed at the scene of the accident or in most local police stations, which means that the subject may be detained for hours or even days until the analyst's report is available. They have developed a procedure with the object of eliminating or minimizing these difficulties. As a result of rather extensive experiments, they have developed a reagent for alcohol. This reagent consists of a weak solution of potassium permanganate in the presence of approximately 55 per cent sulfuric acid by weight. When air or breath is passed through this solution any alcohol present will be absorbed and the absorbed alcohol will react rapidly and quantitatively with the permanganate. This reaction will take place at ordinary temperatures and does not require the application of heat. The change in color is a decisive one, which is marked by the disappearance of the initial purple and the formation of a very faint yellowish brown. The reagent is not affected by acetone. Other alcohols and ether will also reduce permanganate under the condition employed, but these substances would hardly be present in the body of an automobile driver, or, if they were present, they would be included in the substances

which are banned by the driving laws of most states. The decisive change in color of the reagent may have a marked psychic effect on the subject being tested and has frequently enabled the authors to secure truthful statements from alcohol subjects who at first denied drinking. The behavior of the reagent is easily demonstrated in court. The breath odors resulting from the consumption of onions, garlic, sen-sen and cloves do not affect the reagent, and tests conducted on more than 1,000 normal and hospitalized subjects failed to reveal the presence of any substance in the breath of these non-alcoholic people that was capable of reducing the permanganate reagent. The ratio of alcohol to carbon dioxide in the breath may be used to measure the concentration of alcohol in the blood. The weight of the alcohol accompanying 190 mg. of carbon dioxide in the breath is very nearly equal to the weight of the alcohol in 1 cc. of the subject's blood. Employment of the ratio of alcohol to carbon dioxide in the breath permits the test to be done without the subject being touched. A tube is held in the breath stream and a pump draws the sample through the apparatus. Tests made on 121 subjects showed a good correlation between the concentration of alcohol in the blood and the amount of alcohol accompanying 190 mg. of carbon dioxide in the breath. The method will probably not predict the concentration of alcohol in the brain quite as closely as analysis of blood, but the authors believe that the results are amply accurate for practical purposes. In addition to being used in medicolegal cases, it may aid, when the pump is used, in differentiating alcoholic coma from coma due to other causes. It is emphasized that chemical tests for intoxication should not exclude evidence such as observations of eyewitnesses and physical tests but that chemical tests will give additional information, which is often sorely needed. Such tests will exonerate the non-drinker and even the mild drinker, and they will show the concentration of alcohol in the drinker's brain.

OBITUARY

CHARLES P. WHITE, M. D.

Dr. Charles P. White, Wilmington eye, ear, nose, and throat specialist, died on April 13, 1938, in Pennsylvania Hospital, Philadelphia, after a several weeks' illness, aged 67 years.

Born in Wilmington June 26, 1871, Dr. White was the son of the late James T. White and Charlotte White. He attended the public schools here, and then entered the services of the Pennsylvania Railroad. Offered the position of chief clerk after several years, he declined so he could go to the University of Pennsylvania and study medicine, where he was graduated in 1903. He took graduate work at the University in 1922.

He served as chief in eye, ear, nose, and throat work at Delaware, Wilmington General, and St. Francis Hospitals, and was also eye surgeon for the Pennsylvania Railroad for a number of years

Dr. White was president of the Medical So-

ciety of Delaware in 1937, and was a fellow of the American College of Surgeons, and American Otolaryngological Society. He was also a member of St. Paul's R. C. Church, Knights of Columbus, Rehoboth Country Club, and Wilmington Rotary Club.

He is survived by his wife, Mrs. Elizabeth V. White, two sisters, Mrs. Gustavus Konitzer and Mrs. Joseph Sevier, and a brother, George T. White, all of Wilmington.

The funeral was held from his late residence on April 18, 1938, with solemn requiem mass at St. Peter's Cathedral. Burial was made in Wilmington-Brandywine Cemetery.

BOOK REVIEWS

Workbook in Elementary Diagnosis for Teaching Clinical History Recording and Physical Diagnosis. By Logan Clendening, M. D., Professor of Clinical Medicine, University of Kansas. Pp. 167, with 98 illustrations. Cloth. Price, \$1.00. St. Louis: C. V. Mosby Company, 1938

This is a work most aptly described by its title, and as such its future lies solely in its appeal to the student body. The arrangement is logical, and the teaching value is excellent. This book should make an admirable supplement to the regular text books on physical diagnosis.

Men Past Forty. By A. F. Niemoeller, B. S. Pp. 154. Cloth. Price, \$2.00. New York: Harvest House, 1938

This monograph, whose almost sole thesis is impotency, is written by a non-medical author for lay consumption. Despite the glowing foreword by Winfield Scott Pugh, M. D., it is our feeling that books on this and kindred technical subjects are safer and leave a better taste in the mouth when they come from the pen of a trained urologist. Mr. Niemoeller's book moves along fairly well till he comes to the chapters on aphrodisiacs and organo-therapy; then he urges the reader not to attempt self-medication, while at the same time listing the remedies (practically all of them proprietaries), together with the name and address of the manufacturer, as well as the average dose! Oh, consistency, thou art a jewel! Mindful of the dangers inherent in any such publicity to an anxious, nervous patient, we cannot recommend the book.

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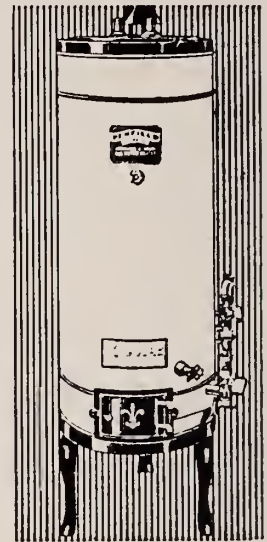
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Nutritional Anemia in Infants

THE iron stored in the infant's liver at birth is rapidly depleted during the first months of life (Mackay,¹ Elvehjem²). During this period the infant's diet contains very little iron—1.44 mg. per day from the average bottle formulae of 20 ounces, or possibly 1.7 mg. per day from 28 ounces of breast milk (Holt³). For these reasons, and also because of the low hemoglobin values so frequent among pregnant and nursing mothers (Coons,⁴ Galloway⁵), the pediatric trend is constantly toward the addition of iron-containing foods at an earlier age, as early as the third or fourth month (Blatt,⁶ Glazier,⁷ Lynch⁸).

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In the sealed can, oxygen, in particular, is undesirable, whether it be released from food cells or be present in the form of entrapped air. If present in the sealed tin container, oxygen can react with the food and the interior of the can and directly affect the quality, nutritive value and merchantable life of the canned food. Other gases—for example, carbon dioxide produced by cellular respiration—should also be excluded as far as is practical. If present in large amounts, these gases may place undue strain on the container during the heat process to which canned foods are subjected.

In commercial canning practice, certain operations—specifically the blanch—may aid in elimination of gases from raw food tissues. However, main dependence is placed upon what are known as “exhausting” or “preheating” operations, not only to expel gases from raw foods, but also to exclude air from the can.

Briefly, the exhausting operation is accomplished by mechanically passing the open can containing the raw food through a so-called “exhaust box” in which hot water or steam is used to expand the food by heat and drive out air and other gases contained in the food and in the can. The

times and temperatures used in commercial exhausting operations will naturally vary with the nature of the product (1).

After exhausting, the can is immediately permanently sealed, heat processed and cooled. During cooling, the contraction of the heated contents of the can creates the vacuum normally present in commercially canned foods.

With certain products, instead of exhausting as described above, the same effect is produced by preheating the food in kettles or similar devices; filling into the cans while still hot; and immediately sealing the containers. With still other products, an exhausting effect is produced by adding boiling water, syrup or brines to the food in the can. In some instances, exhausting is accomplished by mechanical rather than by thermal means. Specially designed sealing or “closing” machines are used to withdraw air and other gases by applying high vacuum to the can and immediately sealing on the cover.

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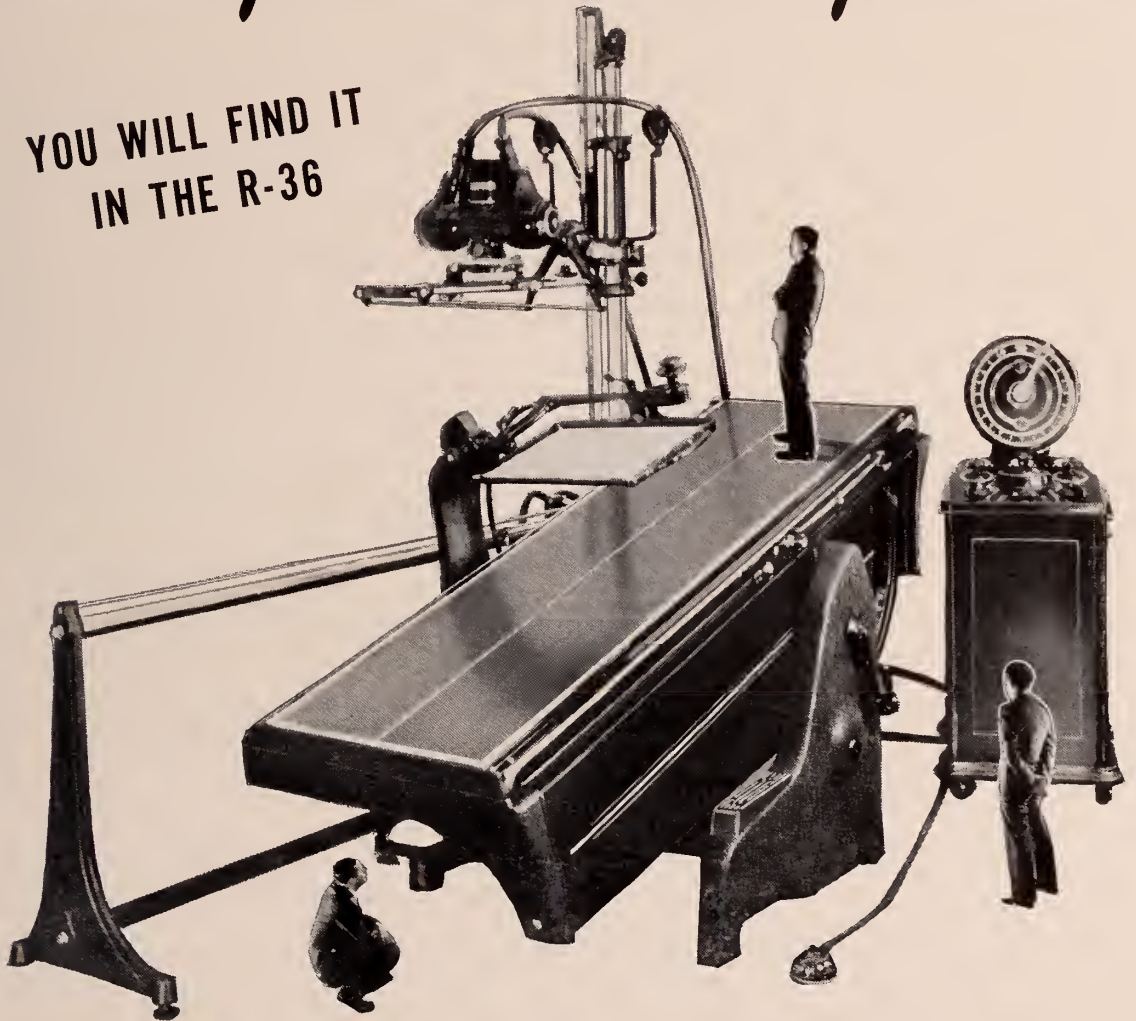
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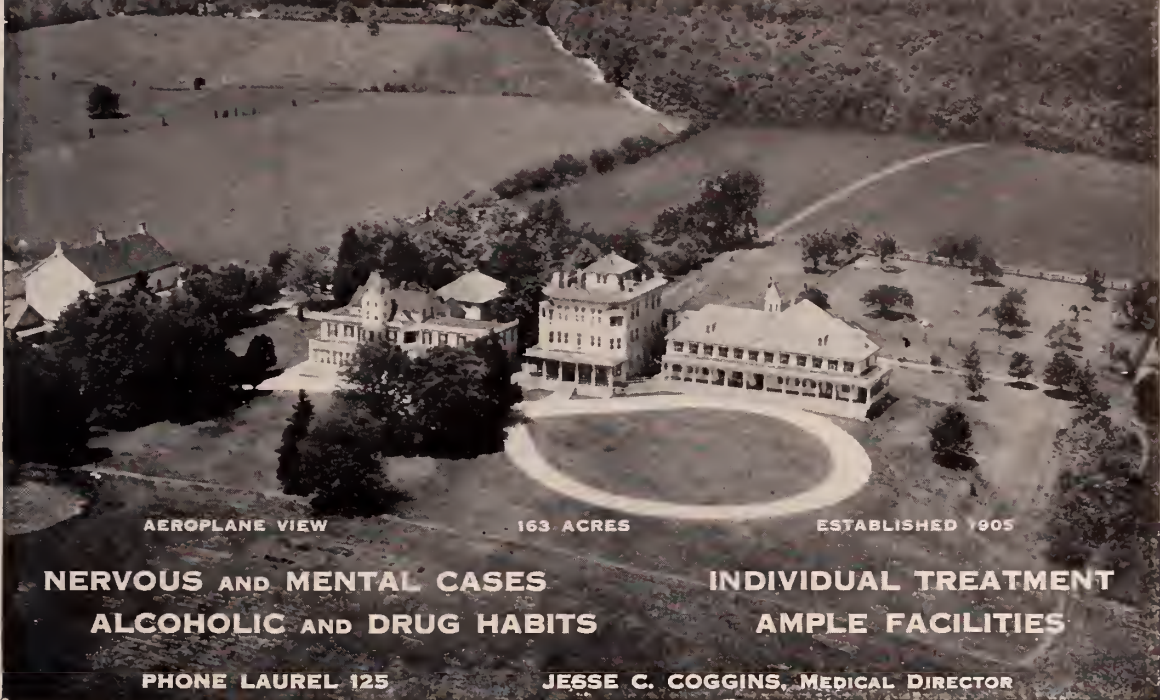
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MATURE APPROACH TO CHILD TRAINING

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The importance of the physical and psychological care of a child from birth until the eighth year of life cannot be stressed too strongly as a determining factor in the regulating of adult emotional adjustment. The physical element is of primary importance, since the healthy child has less difficulty with environmental strains than the one who must struggle with two adverse factors. Even before birth much can be done to help the emotional status since intra-uterine life may be conditioned by the health of the mother. A sickly baby does not have an equal chance with a healthy infant, and one with improper functioning endocrines may be crippled for life both physically and mentally. Prenatal clinics have done much to protect the health of the mother but as yet her endocrine status has not been sufficiently studied. Whether excessive emotional activity with its secondary effects on the endocrines can have an effect on the unborn child is still a problem, but it would seem to be perfectly logical and must be kept in mind as a developmental cause of endocrine abnormality of a minor nature in the infant. It has been recognized that in gross endocrine dysfunction of the mother, replacement therapy is of direct value in the child's physiology.

Given a normal physical body, an individual life is composed of psychological traumas when anything occurs in the life pattern which radically differs from the average pattern. It is entirely within the realm of possibility that the process of being born is an important psychological event in the life of the child. In utero, the child is completely dependent and needs do nothing to sustain

life, the full burden being carried by the mother. The mere process of birth is the first important human experience which the organism must meet and it is accompanied by a certain amount, or I would rather say, a considerable amount of physical discomfort. Its results are a menace to the infant's feeling of complete security and dependence. After birth, the child must perform, without aid, certain primitive acts in order that life may be sustained—he must breathe—he must use some initiative in the action of sucking and swallowing in order that food may be procured. Instinctive and reflex as these acts are, they are, nevertheless, a vital change in the life pattern. Interesting as this is from a speculative viewpoint, we do not know what effect, if any, this probably terrifying procedure of being born exerts on the development of the child or whether some react differently than others, due to inherent differences. The obstetrician might be able to help solve this problem had he time to observe psychological reactions. I am, of course, eliminating permanent physical birth injuries which are often the cause of maladjustment, as well as difficulties due to organic diseases of the brain. From our present knowledge, we know that we have, at birth, a living mass of protoplasm which can be markedly affected by its environment and which is exceptionally imitative and suggestible; we cannot definitely state which characteristics are inherited and which are not. We do know that certain physical traits are present which have been definitely transmitted from the parents, and we are reasonably sure that the degree to which a child may be developed intellectually is also present. Beyond this all factors of inheritance are theoretical. In view of this fact, it is entirely possible that the child's adult behavior depends almost entirely upon its early environment. I have eliminated in-

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herited physical defects of any type. It has been said that in the first seven years of life lie the origins of the habits of thinking, feeling and acting, thus leaving the responsibility for future mental health most prominently in the hands of the parent. We might divide our discussion into three portions: the maternal role, paternal role, and the combined parental role in relation to child development.

Early in life the maternal role is of greatest importance, since she supplies all the child needs to obtain satisfaction of the inherent instinct of self preservation, namely, the supply of food and the provision of body comfort. To satisfy popular sentiment we would like to feel assured that an infant had a definite feeling towards its true mother, but in fact this cannot be done. The maternal role need not be played by the blood mother, but is taken by any individual who gratifies the instinctive needs of the child. The attachment is one-sided based on the mother's feeling towards the child. Should the child be rejected by the mother at birth, the infant merely becomes attached to that person who substitutes. The conflicts which may arise later in life due to such a rejection, if continued, are based not on inherent emotional factors but on the more superficial ones which have developed, and the emphasis placed on the family group through the slow process of civilization. The infant demands nothing more than security and does not question the source. Conflict due to rejection of any type can occur only after a sense of security in a relationship has been established.

From a psychiatric viewpoint the importance of leaving the infant alone, except to care for immediate needs, cannot be too greatly stressed. From a physical viewpoint this is well recognized. The parlor tricks which a very young child can learn are not signs of intelligence but merely of imitations, and a healthy self-sufficient child has a better chance for adjustment than the precocious nervous child who constantly demands the attention of others. Moreover, an erratic emotional life is poor material for any person at any age and the overattention which an infant often receives in the majority of cases must be discontinued as the child becomes older and the family increases. An infant quick-

ly learns to demand attention and if he continually receives it there will be produced a false feeling of his own position in the group relationship as he grows older.

The feeling of maternal dependence should be eliminated as quickly as possible and the child should acquire self-sufficiency at as early an age as his inherent intelligence will allow him to. Only in this way can the arrival of a younger sibling be accepted without emotional trauma. A sudden lessening of attention produces a feeling of insecurity and since jealousy is an emotion produced by insecurity and inferiority, it may develop into overt behavior reactions which are difficult to control. The need of a feeling of security is so essential throughout the entire development of the individual that care must be taken not to endanger it at any time. If early in life this feeling is shattered and not repaired the result is an adult who fails to reach the highest possible development because of a fear of giving up even the slightest amount of security which is present in order to realize higher ambitions. The feeling of rejection which a child must experience when it has received an excess of early attention which must later be lessened or under some circumstances entirely disposed of brings into play one of the fundamental instincts, that of self-preservation. The pressure caused by over-activation of this instinct must have release, the manner of obtaining this release being based on the attitude of the parents, particularly the mother in early years of life. If the child is aggressive he may attempt to physically harm the object which has endangered the fundamental feeling of security, temper tantrums may result and become a permanent part of the picture, if desires are gratified by them. Stealing, running away or other attention-gaining mechanisms may be used and may become a permanent part of the personality picture, developing almost habitual aspects. If the child is submissive, his behavior may be all that could be desired, but there will be an anti-social reaction in the form of withdrawal and abnormal phantasy formation. In the more extreme cases, and fortunately rare ones, there may be attempts of self-destruction in the forms of neuroses, psychoses or suicide. Sui-

eide may be an attention-gaining device, since some children do not appreciate the meaning of death and are merely impressed by the amount of sorrow and attention surrounding the death of the individual. In this case it is an aggressive act, its aim being to secure attention as well as to inflict injury to that individual who has threatened one of the essential needs of the organism, a feeling of security.

Whether the reaction is aggressive or submissive in nature depends upon two factors: physiologically, the endocrinological make-up of the child may lead towards an inherent reaction pattern towards adverse situations; or, on the other hand, the behavior of the parents toward adverse situations may cause an imitative reaction in the child. Even though the reaction is physiological in nature, it may be diverted into socially acceptable behavior by a wise and unemotional system of training and discipline. The physician may improve the situation by removing foci of infections, regulating the life of the child or prescribing endocrine therapy when it is indicated. Punishment, when necessitated, must be appropriate to the offense, must be inflicted without a show of emotion on the part of the parent, and the reason for punishment must be thoroughly understood by the child. It is essential that resistance towards adversity must be built up early in the life of the human organisms when pliability of behavior is still present. As long as civilization progresses as rapidly as it does from a material and mechanical viewpoint without giving the individual opportunity to progress to an equal degree physiologically and psychologically so long will adult adjustment become more and more difficult. Thus, with each generation, it becomes ever more necessary to train a child to meet frustrations which are bound to occur with increasing intensity.

Thus it seems necessary that the child should have a certain amount of thwarting early in life so that he may learn emotionally how to overcome or accept obstacles in a rational and socially acceptable manner. It is difficult for the mother to view her child as from a distance, unemotionally analyzing his assets and defects and using the knowledge which she thus obtains in raising her child

to be a useful adult who obtains a maximum amount of satisfaction in life.

Social adjustment must be started early so that the rights of other individuals may be respected and so that he will demand his own rights with a minimum amount of conflict. He must learn to live in his own generation and to respect the rights of other generations. To do this, it is essential that he associate with others as soon as the period of infancy is past.

Too often a child is trained by dominance. This may produce a docile, well-behaved child, but inhibits the development of curiosity and the knowledge of cause and effect so essential for maximum mental development. Dominance is an easy method of training but surely does not train the individual to use judgment, nor does strict adherence and submission to such training tend to develop an adequate self-poised adult.

The raising of a child is, after all, a matter of good judgment, unhampered by the emotional attitude of the parent. It depends upon a clear understanding of the child as an individual, with a clear concept of his abilities both physical and mental. It consists in allowing the child to develop as far as possible through the use of his own initiative without attempting to force the child to a degree beyond his own inherent abilities.

Paternal role in early life of the child is frequently of too little importance. The child does not recognize the position of the father in the family group, since his contacts with him are too slight if the father must leave to attend to whatever business in which he is engaged. He does not recognize the essential relationship which exists until he is considerably older. Often the father does nothing in the matter of punishment, since he is not present when the misbehavior occurs. Depending upon his disposition, he may be either a playfellow or an individual to be feared. The affection existing between the father and child is not as strong as that of the mother, in that the greater part of the father's life is spent outside of the home. It is probably true that the same child-maternal relationship will exist when the mother is in business and the training of the child is left in the hands of hired help.

With our present economic situation, it seems almost impossible to produce an equal relationship between the two parents and the child. However, the relationship between the parents in the home may have a definite and lasting emotional effect. Discord between the parents does not lead towards a happy marital adjustment of the child in later years. Variation of punishment and tolerance toward misbehavior is confusing. Dissension should not be carried out in the presence of the child if he is to respect authority, a necessary personality attribute since disrespect of authority in the home may continue throughout life.

The combined parental roles is of great importance in child psychology. Too often one parent will show sympathy when the other has been attempting discipline. In studying the personality of the parents, this often is found to be based on a play for the child's affection. The father may reject the child because of jealousy of the attention which it obtains from its mother. This in very early years has little effect because of the minimum amount of time which is spent with the father. More often the child is jealous of the father because of the attention which is given him when he arrives in the home. The mother who has been over-demonstrative during the day changes her attitude on the arrival of her husband and gives to him the attention which the child feels rightfully belongs to him. This jealousy may cause the same behavior reactions which we find occurring in jealousy directed toward other siblings. Too often the parents project their own unfulfilled wishes and desires into the child, in spite of the child's inherent abilities. It is essential that the parents realize that the child is of another generation; the expected discipline and behavior of their own childhood cannot be consistent with modern trends. It is the duty of the parents to be familiar with the advances in education and social life so that the child will be able to live in his own age group successfully and that he will be trained for adjustment in this group and not for the group in which his parents lived. There must always be present a cognizance of progression and social situation.

Illness of the child is one important factor in changing the behavior. Too often one

bears the parents blame the child's anti-social actions on an illness in which the central nervous system was not involved. To the parent this is an explanation and a denial of their failure in handling a situation properly. Undoubtedly, the ill child has least difficulty if handled in a hospital. The explanation for this is simple, in that he is one of a group and as one of a group he does not receive special attention. It is true that some nurses err in giving the physically attractive child more attention than others and in this way occasionally do damage. However, on the whole the hospital staff is too busy to play a great role in the "spoiling" of the patient. On being admitted to the hospital there is a radical environmental change accompanied by fear. However, in well run hospitals, this is shortly overcome on entering the ward and seeing other children adjusting satisfactorily. Let me state here that I feel that unless the child is dangerously ill, ward placement is of more value than a private room placement with private nurse, in which case the child is much too apt to receive an excess of attention. Expectation of good behavior of the ill child usually results in such.

When the child is acutely ill he is not a problem from the viewpoint of discipline. His lack of knowledge of the consequences which may result relieves him of a fear reaction. He is also less demanding than the adult and accepts situations as they arise, and since the nervous system is not as well developed as that of the adult he does not feel pain to as marked a degree and he recuperates much more rapidly. Probably one of the dangers in hospital placement of children is the lack of occupation during convalescence when his illness is of such a nature that he is not content to lie quietly. Habits of thumb sucking, masturbation, and playing with fingers and other anti-social acts have been developed because of the lack of other occupation. The provision of play material and the encouragement of self-help when he is physically able prevents the development of adverse habit formation. If the child is kept at home he is too often the center of attention and finds, when the acute symptoms have been relieved, that being sick is an enjoyable situation. The infractions of good behavior are ignored. Because he is the center of attention and because

of the obvious worry which the parents show, his feeling of self-importance is elevated. He may demand extra attention when he becomes well and he may find illness a pleasant escape from the problems of life, thus he attempts to evade unpleasant situations by feigning illness and so obtains the desired attention and leniency towards misbehavior.

In closing, I would like to say this about the problem of intellectual limitation—a carpenter who is successful in his field is happier than a professional man who is unsuccessful. Parents will refuse to accept the statement of authorities and continue pushing a child, thus accustoming him to failure or producing behavior problems because of inferior feeling. It should be the aim of the parents to produce a happy individual, no matter what the field may be and not to demand continuous study in the intellectually unequipped child.

STUDIES OF CASES OF GENERAL PARESIS IN DELAWARE STATE HOSPITAL

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This paper in no way attempts to discuss the relative values of the various types of treatment for syphilis, nor does it attempt to add to the knowledge we have of the subject. However, in the study of the records of cases of general paresis who have been entered in the Delaware State Hospital in the last twenty or twenty-five years interest was aroused as to the outcome of such cases.

As to syphilis itself, we can only say that innumerable articles and books have been written on the subject and it would take the better part of a life time, if not more, to read all of the literature on the subject. Even its history is becoming dimmer as discoveries have been made which show that the American Indian was not responsible for the almost epidemic-like character which it assumed in the middle ages. It was certainly recognized in Persia in the sixteenth century, and may have been carried to Europe from the Far East. Recent archeological studies would seem to indicate that the disease is much older than has been generally recognized. It has even been suggested that Alexander the Great died from the infection, but to base a

diagnosis on the vague descriptions of that period ranks with the other unfounded tales as to the cause of death of other historical and renowned people living in rather ancient periods. The fact remains that it was not until the twentieth century that the condition was treated scientifically, with the aid of the laboratory. Mercury was used in the fifteenth century, but no reason for its curative powers was given. Perhaps the patient was not cured, although the symptoms disappeared.

Descriptions of general paresis were made as early as 1672, although the specificity of the disease was not known until the twentieth century. As to why such a small percentage of syphilitics develop general paresis is still questionable. The rapidity with which advances were made in treatment during the last twenty years, and the duration of remissions due to treatment extending over fifteen years bring the disease from one of a hopeless prognosis to one in which clinical recovery is fairly frequent. Since the spinal fluid is involved in all probability before the mental and neurological symptoms appear, and since the blood Wassermann may be negative, a syphilitic should not be pronounced cured or arrested until one or more spinal examinations have been made.

There were 109 unpicked cases studied in this group, about one third of the cases so diagnosed on available record or since 1916.

During the first five year period, from 1916 to 1921 there were 16 cases, none of which were over middle age, all of which died, the cause of death being due to general paresis, with the exception of one case who showed marked improvement. On being returned home he found that his family had left him, he became depressed and committed suicide. Seven were in the hospital over two years and not more than four years; two were in the hospital less than six months. The other seven died within one and a half years of hospital residence. The usual routine mixed treatment was given, except in one case which received, in addition, spinal drainages. This man improved for a while and lived the longest.

During the second five years, there were 43 whose records were studied. Six of these were over sixty years of age. Thirty-four of

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these died, all of general paresis, but thirteen gave a hopeless prognosis on admission, five were discharged improved, one escaped, and three still remain in the hospital. These three have had the malaria treatment and showed an arresting of the process. Two discharged patients received the Swift-Ellis treatment with some improvement. One improved with spinal drainages. One was discharged after receiving treatment with malaria. Two of the others received malaria but did not react well, dying of the disease.

During the next five years, twenty-seven patients were studied, fifteen of whom died. Two of these were over sixty, and five died of other causes. Five were in the hospital less than six months. Of the five remaining deaths, two received malaria, and one malaria and Swift-Ellis. Seven were discharged as improved or recovered. Of these seven, six received malaria combined with Swift-Ellis—or tryparsamide treatment, and one received Swift-Ellis treatment alone. Of those still here, four received malaria and tryparsamide, all showing arresting of the process; three showing actual improvement. One received inductotherm and tryparsamide, without improvement.

Of the twenty-two in the next group, ten died, six of other causes, one over sixty years of age, and three in the hospital less than six months. Of the remaining twelve, the six receiving hyperpyrexia and tryparsamide improved; one improved on tryparsamide only; one showed no progression with tryparsamide; while the other four who received only the tryparsamide showed no improvement, but progression of the disease.

The figures given show a more favorable prognosis in the invasion of the central nervous system by syphilis. The mixed treatment was of no help whatever. Spinal drainage combined with mixed treatment in one case seemed to have definitely prolonged the patients' life, but did not stop the process. Swift-Ellis therapy produced a few remissions, but on the whole did not show particularly favorable results. Malaria therapy showed the most promising remissions, which in some cases have lasted over fifteen years. Those patients were kept under observation, and the blood and spinal fluid were examined routinely. Those who reacted most favorably

were the patients in which symptoms were not far advanced and who were comparatively young. In those who seemed to recover both the spinal Wassermann and the colloidal gold curve gradually came to normal. In a few cases the spinal fluid tended to become slightly positive but it quickly reverted to normal when the patients received a course of tryparsamide.

The results of inductotherm were at first thought not to equal those of malaria. However, combining inductotherm with tryparsamide seems to be producing results which are equal. Both are hazardous forms of treatment in the presence of other pathology. Inductotherm offers the advantage, in that it is possible to terminate the treatment as soon as adverse symptoms appear. However, its value does not seem to be as great unless it is combined with tryparsamide. Since tryparsamide, as is commonly known, may in some individuals have a definite effect on the optic nerves, it is necessary to examine the visual field before each treatment and to question thoroughly regarding subjective symptoms. At the sign of the least difficulty, it is necessary to discontinue the treatment immediately. Should visual difficulty occur, repeated spinal drainage will in most cases restore normal vision.

Malaria is a more dangerous condition, in that the reaction is not as easily controlled. Occasionally a recurrence of the malaria has appeared months after it was thought that the patient was cured.

It can only be stated that the prognosis of general paresis is fairly good if the cases are diagnosed early and carefully treated, with all other physical abnormalities taken into consideration. Needless to say, all syphilitics are entitled to one or more spinal fluid examination even though overt neurological and mental symptoms are not present.

SUICIDE

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It has been stated by an authority that there are a minimum of 310,000 suicides a year in the entire world, and of these, 20,000 are in the United States. During the period that vital statistics have been kept it is easily

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demonstrable that suicide is on the increase. The increasing complexity of modern life has borne the brunt of the blame and to this may be added the relaxation of social discipline. The motivation includes such things as economic stress or financial loss and unemployment, general despondency, domestic upsets and unhappy love affairs, worry or fear over possible insanity, poor health, old age and helplessness, alcohol and drugs, an abnormal personality, death of a spouse and delinquency. If the current news can be trusted it would seem that a sudden change of government, such as occurred recently in Austria with its accompanying wave of suicides, might be an additional motive. As to the influence of heredity there is no proof that suicide as a specific diathesis is inherited. To assume that certain overt tendencies are transmitted through the germ plasma is very far-fetched, and not biologically subject to proof. From a psychological standpoint, however, we must look upon such causation as secondary, and for the primary factor must delve into the personality of the individual and seek a subjective rather than an objective cause. All of our minds are replete with contradictory emotions, buried tendencies of opposing forces which impel us in contrary directions. As a British writer puts it, there is excellent evidence for being able to say that one reason for self-destruction is that the suicide desires the death of another person, and that in this way he acts out upon himself what he wished to inflict upon some one else. The psychoanalyst looks upon suicide as an illustration of the inherent desire in the mind of man to evade the difficulties and problems of life.

As an example of the many excellent reports and studies on the subject, that of Franks, of Toronto, is one of the most inclusive, and is illustrative of findings elsewhere when a detailed study is made. In the seven-year period, 1929 to 1935, inclusive, there were 968 known cases of attempted suicide in Toronto with 626 deaths, or a mortality rate of 64.7 for all cases. The rate for females was more constant in attempted suicide than for males and was always higher, though in the males there was a higher incidence of fatal terminations. As to the season, the rate was higher from September to November inclusive, and lowest in January. Females favored pois-

oning and used the poisons at hand in the home, such as lysol, iodine, and bichloride of mercury; a considerable percentage used stove gas. The males preferred jumping from heights, cutting, and shooting. Of the 352 cases of attempted suicide admitted to the Toronto Psychiatric Hospital, it is interesting to note that besides the large percentage diagnosed as belonging to one of the depressive groups, there were ten cases of toxic psychosis who made attempts during a temporary period of confusion and delirium.

Why do people commit suicide; through what mental processes does a person go before he attempts or commits suicide? All of us are constantly presented with problems of varying complexity, yet the most of us do not become demoralized or attempt self-destruction. We manage by hook or crook to find a way out of the puzzling situations, most of which are after all rather insignificant, such as, for example, whether we will get a new suit now or await the next fire sale, or whether to buy a new Ford or make the old bus go for another year. However, there are times when such situations may turn out to be both annoying and disturbing, with a resultant inner conflict and temporary inability to solve the problem. Our emotions are aroused—so we have met what the sociologist calls a "crisis." By crisis we mean any serious disturbance of habit or custom, such as may be caused by disappointment resulting in unhappiness or sickness, accident, unexpected loss of money, property or job, etc. One has a new situation to deal with and while trying to restore things to a more individually bearable basis, he tries first one scheme and then another and is often sorely perplexed. If he succeeds then he has adjusted; if he does not, he is unadjusted and may in the course of a long drawn out struggle become demoralized by repeated failure. Naturally the degree of disorganization that occurs will depend upon the whole mental equipment of the individual. Crises may be immediate or cumulative. As the word signifies the immediate crisis calls for a solution or readjustment at once, such as to an accident or a death. The cumulative may be the result of a long drawn out illness or series of tension situations. People meet a crisis in one of two ways; they either face the problem or they withdraw from it. Their withdrawal

may take the form of introspection, drugs or phantasy, or they may develop a depressive mental reaction which in those so disposed may eventuate into suicide. And what is it that disposes one favorably towards suicide? This is not definitely known, yet it must come from something in the environment, such as newspaper stories of suicides or the acts of other people. Sometimes the wish for death is ill-defined and may result from a sort of weariness with life and a tedious routine. Often the wish is more tangible, such as an unfulfilled desire for companionship or some need that cannot be satisfied by the environment; or it may take the form of a recognized wish revolving about some one object or thing such as an unrequited love.

When we deal with the relationship between suicide and mental disease the first question that presents itself is whether those who attempt or commit the act are necessarily insane. There are conflicting views on this point, but apparently there are many so-called normal people who do end their own lives, though without doubt certain types of psychotics are more liable to do so. Kraepelin maintains that an average of 33% of all suicides are psychotics, while Esquirol, the French psychiatrist, considered suicide a special form of insanity. It is the opinion of Hoch that a large proportion of suicides are psychopathic personalities or have border line psychoses. However, since it is impossible to draw any hard and fast line between normality and mental disease it seems useless to take the extreme view that suicide alone is sufficient evidence of insanity. We know very well that there is no such thing as "temporary insanity" according to the popular notion, and that the coroners jury often brings in such a verdict with little, if any, supporting evidence in order that the stigma and any legal penalties may be evaded. Neurotic people are the victims of mental conflict and often suffering from much unconscious morbid guilt; so many of them think and talk about suicide that it is often necessary to consider them as potentially suicidal. It is a highly popular fallacy to suppose that anyone who talks about suicide will not carry it out. Only experience can enable one to differentiate the person who really means what he says and another who

through such a threat is endeavoring to get sympathy and attention and thereby dominate some situation.

Broadly speaking, any person with an abnormal mental state, exhibiting depressive tendencies can be looked upon as potentially suicidal. Of those abnormal states the simple depressions or "melancholias" are quite numerous. In the beginning the patient exhibits little external evidence of anything wrong. He may be less active and less communicative than before, and exhibits little interest in social events or amusements. These symptoms usually grow worse but are often kept well hidden by the patient. At this stage these patients are dangerous suicide risks. Sometimes when questioned they will admit that death looks good to them but they will rarely spontaneously admit it and often deny it, thus throwing relatives and others off their guard. They rarely attempt suicide in the presence of another person. Hence it is usually not difficult to prevent if the danger is recognized. It is in the depressive phase of manic depressive psychosis that morbid depression is most marked; suicide then is not only possible but is even a likely happening. This is especially true in that form of the disease which may show itself at the involutional period of life. Statistics show that manic depressive psychosis probably ranks first in the psychoses leading to suicide. In the paranoid type of dementia praecox, acute cases with delusions of persecution often find their problems so insurmountable that suicide seems the only way out. This type will resort to any method and the attempts are at times desperate and the methods used may be particularly grotesque. Often, if the attempt proves unsuccessful, if the patient is questioned, the motive given may be trifling and absurd or he may give no reason at all. It seems to be a fact that a psychotic of this type may commit suicide without premeditation as to method, means, or consequence and with no realization of the result of his act. In other types of dementia praecox, hallucinatory voices may at times order patients to kill themselves. Alcoholics probably commit suicide because of terrifying hallucinations and ideas of a depressive or persecutory nature. It can be well understood that the victim of per-

sistent persecutory delusions may in the course of time become tired of the struggle and welcome the thought of death. So sufferers from senile and arteriosclerotic disorders, paranoia, and general paralysis, may under such circumstances end their lives. Suicide as a means of escape is as evident in these individuals with their imaginary trouble as in the case of more normal people who face a real trouble.

We come now to a special problem confronting the chief of every mental hospital: when can a case in which suicide has been a problem or even a possibility be safely paroled. The question of responsibility in cases of suicide becomes at times a very unwelcome burden, particularly when relatives seek to take legal advantage of the incident. It may do a great deal of harm to permit the idea to prevail that physicians and hospitals are liable for damage, unless neglect is obvious, in these cases. The cunning and persistence of some patients to end their lives would baffle almost any measure to protect them. Nevertheless, experience shows that almost all suicidal attempts occur when the patient is left alone, and by obviating this situation we thereby approach control of it. It is sometimes exceedingly difficult, but very important, to convince some relatives that certain patients are actually suicidal. Unless they are so convinced and have a thorough understanding of sharing the responsibility certainly no such patient can be entrusted safely to their keeping. With mental improvement and when good rapport with the patient is established, and when and if the relatives have insight into his trouble and are willing definitely to share the responsibility with the hospital, then, and only then should the patient be paroled.

In the prevention of suicide we should first remember that rarely should depressions be treated at home because home treatment is inadequate and dangerous. The most rational prophylactic aim must be to try to lay down a healthy emotional foundation for the mental soil, so that in later years the mind shall be enabled to adapt adequately to the inevitable periods of painful reality that in some degree must come to all. Occupation is an important item in the general treatment as it tends to keep the patients' concentration on action other than suicide. General hygiene and dietary measures as well as promotion of sleep

are of importance. Attention to organic disease requires no special comment. Many difficulties can be overcome by using the patient's tendency to increased suggestibility, so that suggestion becomes a valued form of psychotherapy. Disharmonies in the home, oppressive treatment, etc., must be removed or ironed out. When an adequate goal has been created for the patient, then can we consider him on the way to recovery.

There is prevalent a mistaken notion that the suicide rate in mental hospitals is high, this in spite of the obvious fact that patients are under the watchful care of a trained personnel. In the Delaware State Hospital over a period of ten years there have been just six successful suicides in a population ranging from 605 in 1928 to 1139 in 1938. In addition there were six suicides of paroled or discharged patients during the same period. Of these twelve suicides four were males and eight were females. Three males committed suicide in the hospital and so did three females. Only one male committed suicide while on parole, while there were five females who succeeded in their efforts while on a visit.

The methods elected were as follows:

Males: jumping from a height, 1; strangulation, 1; jumping in front of a passing automobile, 1; shooting (on parole), 1. Females: Lysol (1 on parole), 3; bichloride (on parole), 2; falling from height (on parole), 1; stove gas (on parole), 1; strangulation, 1.

The diagnoses in this group were: manic depressive insanity, 5; psychoneurosis, 2; dementia praecox, 2; psychopathic personality with psychotic episodes, 1; epilepsy with psychosis, 1; general paresis, 1.

In conclusion, it is apparent that suicide presents a serious problem affecting community life and institutions, as well as disrupting homes. Some patients give no warning, on the other hand many do, and it is an early recognition of these danger signals that is of first importance. This is where the family physician must aid; as has been said before by a distinguished writer, the general practitioner must practice minor psychiatry just like he does minor surgery and be able to distinguish between benign and malignant cases; major psychiatric problems should be sent to the hospital just like major surgical cases are sent.

MULTIPLE INFLUENCES IN THE FIELD OF MENTAL HYGIENE

Clinical Studies of Personal and Social Maladjustments, With Emphasis on the Multiplicity of Determining Factors

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As in diagnosis and treatment in all other medical specialties, it is necessary in psychiatric work to follow a technical approach in order to identify the factors behind the disorder. The human organism develops in totality in accordance with designs of remote heritage in the phylogeny of the race, as well as by the plan of development in each individual life history from infancy through adolescence to maturity. Critical issues may appear at any stage of development, effectuated in accordance with the time when they make their appearance and with the defensive mechanisms that have been elaborated by each person.

No development period is free of nervous and mental hazards. Early in infancy, it is claimed that a pattern of responsiveness becomes established and remains fairly constant throughout life. This behavior depends upon encouragement and training. Attention is directed first to the acquirement of healthy habits of intake and elimination. Temperaments of children so vary that not all can be guided with equal facility. Early differences are noticed in speed and skill of movement, energy output, resistance to direction, and reaction to disappointment and denials. Some children cry without any apparent signs of discomfort. Others are very good babies, contented and docile, even in the presence of pin scratches at every turn. Almost simultaneously with the training of habits of food and elimination, attention is directed to the control of energy output. Children are to be taught the use of objects so that they can do things efficiently, promoting thereby satisfactions as well as adaptabilities.

Then there follows, in this habit training program, a control of adjustment with other children. Recently training toward adjustment in groups has been set forward one or two years in the hope of removing some of the difficulties in kindergarten and in the first grade at school. Much di-

plomacy is exercised in teaching children that all persons and playthings are not a part of themselves to be used for their exclusive enjoyment. This is a very critical period in the child's social adjustment. Too much restraint results in permanent patterns of rebellion. Frequent changes, indecision and contradictions on the part of parent or worker arouses a confusion of emotions in the child. Emotional integration even at this early period depends upon a consistent program of constructive interests and essentially pertinent emotional codeterminants. Too often habit training is aimed at restricting the overactive, inconsiderate, and egocentric child, especially in a large group where conformance is the premium. Most time is consumed with the more active children who are the greatest obstacles to conformance in the group as a whole. To accomplish a more even distribution of time spent at individual guidance, children are now being grouped according to activity, size, strength and degrees of social extroversion. Habit training in children's agencies has become primarily constructive and positive; "don'ts" have been replaced largely by invitation and encouragement.

In the life history beyond the juvenile stage, there appear more elaborate sensibilities as the organism matures. Influences which played no part earlier are now determining forces. The home and school cooperate to develop every worthwhile capacity for adjustment. On the subject of community opportunity, the amazing feature is, not how much delinquency prevails, but rather, how much adjustment there is, despite a total lack of inspiration and a deplorable meagerness of recreational outlets. Many small centers of adolescent activity are operating totally without adult supervision or control. Poolrooms, street corners, athletic clubs, back lots, parks, second floor dance halls, and fraternity and sorority houses all seem to be going at full pace in the smugness of their separate little cultures.

The child reflects home and family distress under the pressure of desolation and poverty. Parents and older siblings become cynical; uncles, grandfathers, second and third cousins are all being herded together in the same dingy hovels. Children are expected to be

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blind and deaf to the miseries and the moral obtuseness of their elders. The saying "It's a wise father that knows its own child," is reversed to read, "It's a wise child that knows its own father." Where alcoholism, corruption, desertion and divorce characterize the home life of the child, little can be expected in the way of respect or faith in justice and authority. A child nine years old emphasized very forcibly the hopelessness among adults when, in answer to the question "What are you going to do when you grow up to be a big man?", he remarked, "Nothing, I guess. Hell, there ain't no more jobs."

A number of cases will be described briefly for the purpose of demonstrating multiple influences that operate in personal and social maladjustment.

Eddie, a thirteen-year-old white boy, was referred to the Clinic by the Juvenile Court for stealing. He is the last of four children of neuropathic family stock. His father suffered many phobias since an early age. Bed-wetting and nail biting prevailed among siblings. Birth was instrumental, followed by some skull deformity. There was a history of unconsciousness at eight years of age, in an injury by automobile.

Eddie is in the sixth grade repeating this year. He has not failed previously. Teacher describes him as day dreaming and unable to concentrate. She thinks that he is just not capable. At home he is friendly with other children and enjoys himself most when he is with them. Boys all like him. Examination at the clinic reveals an attractive, responsive little fellow with mobile easy expression. He is quite a vocalist in conversation. Psychological test rates him in the high dull normal level of intelligence on verbal tests and above average intelligence on manual tests. Neurological examination is positive for diffuse organic brain dysfunction; pupils are unequal, reflexes overactive, marked dyskinesias and incoordination on finer finger movements with speech defect. Besides retardation in school, Eddie's persistent stealing is the only primary issue that would bring him to the attention of the authorities.

Effective in creating this behavior pattern is a dissatisfaction with school progress because of inability to succeed in reading sub-

jects. Eddie is a non-reader. For his dissatisfactions in school he substitutes gang play in which the chief criterion of superiority is stealing. Eddie is not a seriously unstable child even though he suffered injury at birth and again in childhood. These factors no doubt operate in the boy's emotional responsiveness and have much to do with undermining his attentiveness and stability in the classroom; they are not however solely responsible. Along with neuropathic heredity they act as supplementary deterrent factors.

Roy is a ten-year-old white boy, referred by his family physician because of nervousness. He had truanted persistently and would stay away on the slightest provocation. He complained of headaches and pains in the stomach every morning. He is in the fifth grade, having been promoted each year. He has never misbehaved in the classroom. He is the third of six children reared in a family of opportunity with every attention and care. From an early age he was noticed to be sensitive and fearful. He cried a great deal when he was left alone. Although similar in features to his siblings, all of whom show a strong family resemblance, he has always avoided the characteristic rough and tumble play of the other boys. He cries when he is corrected. He has often come home from school in tears because the teacher has scolded other boys in the room and he was afraid she might scold him the same way.

Examination at the Clinic reveals average intelligence in all fields. Without previous information about the boy's complaint or history, the psychologist reports his findings as follows: Roy is unassertive and insecure in attitude. He fails to produce adequate responses even if the problem is within his comprehension. Roy has a fine informational background, but does not know how to demonstrate his learning even if coaxed. At times he remains silent for unusually long periods before a perfectly adequate answer is made. His face retains a puzzled expression during the entire test session. The language forms used are frequently quite superior. He is slow in answering but ideas are expressed very aptly and accurately. He has marked feelings of inadequacy which interfere with effective social and verbal adjustments. Any

task of an arbitrary nature is difficult for Roy. He is not very practical in his decisions. He easily becomes involved in a maze of ineffective planning. Roy is of average intelligence. His achievement in special subjects is one grade beyond his actual grade placement.

Physical examination was essentially negative. Roy is in every respect well developed physically, of good muscular build, normal in height and weight for his age, free of system defect.

In the course of analysis it is found that Roy is following a temperamental pattern very much like that of his father in his youth. His father, who is now well adjusted, employed, and normal in every respect, was very sensitive as a child and cried on the slightest occasion. He often cried in sympathy for brothers and other children's tears constituted a signal for him to join in. The patient has followed a somewhat similar course. He is recently improving. Following a very careful home investigation and analysis of life history with full attention to family relationships and teacher attitudes, there has been no evidence to favor a series of sensitizing episodes as a cause of Roy's timidity. This much has been true, however, that it has been difficult for brothers to refrain from scaring or teasing him to tears for their amusement. This factor has probably perpetuated a temperamental deviation, which in itself is not disabling.

The following case, quite different from the foregoing, represents what might be termed an end-product in the age of decline at sixty, with behavior largely patterned by multiple influences in early life. Rake is in the workhouse serving his twenty-third sentence for vagrancy. No seriously antisocial acts have ever been charged against him. He was born and raised in Delaware of stable parentage. His father died when he was young. He has always been healthy. He went to work at odd jobs when he was thirteen years old. He never married. He has used whiskey moderately but has never been known as a drunkard.

With this history of very limited schooling, sporadic employment at unskilled labor, and a series of vagrancy charges with short terms in the workhouse, it might be expected that the man was seriously psychopathic or feeble-

minded. The psychological tests are as follows: Terman Vocabulary: Chronological age 60, mental age 19 years 8 months, intelligence quotient 123; Stanford-Binet: mental age 16 years 5 months, intelligence quotient 102; Army Performance Test: mental age 11 years 4 months, intelligence quotient 73. The psychologist reported that the man possessed a superior vocabulary and a substantial fund of knowledge. He knew that he was taking a "sanity test" and said that he was prepared to do his best. He was diligent and earnest in relation to all items. He seemed to enjoy the challenge and occupied himself industriously. Neurological examination is negative for system disease except a severe infection of the gums. Stature is small; there is quite a marked kyphosis in the dorsal region. Serological tests were completely negative. Blood pressure within normal limits.

On psychiatric interview Rake is freakish looking, due to short, stooped stature and ungainly protrusion of jaw. He talks rapidly and coherently, has a good vocabulary and converses well on subjects that have come to his attention. He gives a very good account of his early development. He says that he was drunk on several occasions but has never been addicted to the use of liquor.

In regard to his early life, Rake says that he has never had more than a grammar school education. He was the youngest of four boys. His sister died in infancy. He left school at thirteen to work in a butcher shop. He carried 100 pounds of hog fat twice a day about a mile and a half with a wheelbarrow strapped to his shoulders. He does not believe that he was an unusual boy at school. He got along very well and had a lot of playmates. He mentioned some men in Delaware, prominent in public life, with whom he went to school. In fact, some of them played in his backyard with him. He claims that the officer who first arrested him at forty years of age had been a boy in his class at school, with whom he had several fights. He believes that some of the kids picked on him because he had long curls until he was eleven years old. In all probability the boy's pugilistic tendencies were a compensation for the nickname of sissy. He was good with his fists, curls streaming.

Due to the death of relatives while he was in his thirties, he has been more or less home-

less, having only a niece as the nearest relationship. He has lived in garages and shacks. He says that he has never violated any law. He admits that he spoke his mind freely and would take up for himself. He adds that he knows practically everyone in Wilmington and does not believe that he has ever made himself a nuisance. He has no resentment against being in the workhouse. In fact, he plans his commitment each winter for protection against the weather. He was afraid at this last trial that he would get only ten to thirty days so he tried to convince the judge that in addition to trespassing he was also guilty of arson, but "no one would believe me."

Rake does not think that there is anything unusual about his many trips to the workhouse. He says that it is the only place where he can be sure of a warm bed and the next meal. He adds that he worked two winters in a cold garage trying to heat a big place with firewood in anticipation of wages. He was never paid for this janitor work. He plans to leave the workhouse in the spring, when weather permits and go down state to work on a farm.

By way of formulation, the man represents a degraded generation of previously good intellectual stock, homeless and isolated from family connections since early middle age. His intellectual state and facility for talking clash too strongly with his freakish appearance and low social cast. This disparity between the man and his appearance arouses in other persons, first a skepticism and then a revulsion. This has probably been the reaction of officers, employers and new acquaintances. Rake is quick to argue. He has a good knowledge of current events and is clever in his ethical interpretations. These attributes, ordinarily assets to a person, have actually worked to his disadvantage in combination with poverty, ugliness and social ungraciousness. He insists that he has never been downright lazy, that he has always worked when he could get a job. His auto-critical faculties are quite fair and his judgments are good considering his opportunities.

In search for aggressive unworthy personal traits that might lead to conflict with authority, and troubles with companions in so-

cial setting, it was believed that possibly Rake was sensitive and argumentative. His pugilistic tendency in childhood may support this opinion. In his favor, are fair insight and judgment, good intelligence, physical activity and a fairly agreeable general demeanor. The man probably figures as a social outcast, not so much because of defective inherent personality qualities, as because of definite social determinants, so that there was simply no place for this type of person in the community cultural set-up. The deciding factor that worked against the man's adjustment was the fact that he never belonged to anything. It is a challenging life history from the standpoint of ethical codes, for an interpretative analysis of the factors which combined to create a record of twenty-three sentences for vagrancy in the State Penitentiary for a man of average intelligence, good health, genial disposition, and remnants of good family stock.

By way of summary, cases have been reported with the view of identifying primary issues among multiple factors which influence behavior in the run of the mill throughout life. It is sometimes speculated that the same forces operate everywhere and that it is individual responsiveness or constitution which determines success or failure. The reverse is probably true. To be sure, capacities and measurable likenesses and differences in constitution determine the maximum to be expected in life adjustment, all other things being equal. However, early habit training during infancy and childhood, parent and teacher attitudes in the juvenile stage and firm intrafamily devotions at adolescence are most important in the establishment of ethical and moral views at maturity, quite irrespective of constitutional determinants. With an unbiased evaluation of these environmental factors, behavior becomes more understandable.

PREFRONTAL LOBOTOMY: RESULT IN A CASE OF AGITATED DEPRESSION

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Of all psychiatric conditions, agitated depression is doubtless the most distressing. The unremitting mental agony, unrest, apprehen-

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sion, and the relentless pangs of remorse over minor or fancied misdeeds render the life of the victim little worth living. The prolonged course of the average case, with the difficulty in affording by the usual means any but the most transient relief, makes the promise of a method for permanent alleviation of the condition most heartening. The majority of the cases are at or beyond the middle age, and without radical interference many of them can expect no relief from their misery until death intervenes.

Many are past the productive period of life when a possible slight lowering of intellectual efficiency below the normal level for the individual will result in no serious handicap. This fact eliminates some possible objections to the use of surgical methods for relief.

While the typical mental changes associated with frontal lobe damage have long excited notice, it is only recently that the attempt has been made at deliberate application of these effects in psychiatry. In 1936, Egas Moniz, (1) Professor of Neurology at the University of Lisbon, published a report of several cases in which he had cautiously arrived at the procedure used with some modification in this country.

At first he injected alcohol into the subcortical white matter of the prefrontal area. Later he made sections in the subcortical white matter with a leucotome having a steel loop which tended to crush the white matter; still later he adopted a leucotome with a steel band having a cutting rather than a crushing affect. With this instrument he cut six cores, each 1 cm. in diameter in each frontal lobe. He reported few complications following operations. Moniz has reported encouraging responses in agitated depression and also in certain cases diagnosed as dementia praecox.

The operation was first used in the United States by Dr. Walter Freeman, Professor of Neurology, and Dr. James W. Watts, Associate Professor of Neuro-surgery at the George Washington University School of Medicine. In three papers they have reported subcortical prefrontal lobotomy in twenty-five cases (2-3-4). They have had better results in affective disorders than in schizophrenia. Of the twenty-five patients in the series reported, seven are substantially well and five are improved. There was one post-

operative death due to cerebral hemorrhage, not necessarily caused directly by the operation. In these papers the authors are careful not to speak of cures until more time shall have elapsed. In a few cases initial improvement has been followed by relapse.

Dr. M. A. Tarunianz, superintendent of the Delaware State Hospital, was interested in the satisfactory results reported in chronic agitated depression. Early this year he and our Consulting Neurosurgeon, Dr. Francis C. Grant, went to Washington to personally observe the operative procedure and to note the condition of persons who had undergone the operation. They were so favorably impressed that Dr. Freeman and Dr. Watts were invited to examine a group of patients at the Delaware State Hospital with a view to selecting those most suitable for operation. The series of cases on which we are now working is based upon these recommendations.

The following case, the first instance of the use of prefrontal lobotomy in the Delaware State Hospital, will serve to indicate the results to be hoped for in the employment of the procedure.

REPORT OF CASE

HISTORY: J. K. is an unmarried woman, 66 years of age. She had a high school education. For thirty years she had worked in the office of a canning factory. During this time she also did some housework. She was considered an excellent housekeeper and took pride in the neatness of her home. At the age of 45, during the meno-pause, she suffered an attack of severe depression with agitation, ideas of unworthiness and self-condemnation. She became resistive and destructive. After three months the attack subsided.

She was well until June, 1933, when she began to show signs of undue irritability. Household tasks became more difficult and often she would leave work uncompleted. In August, 1933, she gave up her employment, complaining that she was no longer capable of doing her job properly. The condition steadily progressed. She developed delusions of persecution and visual hallucinations. She remembered the previous mental illness, realized that she was not well and was anxious that something be done to avoid a recurrence.

EXAMINATION: When admitted to the Delaware State Hospital in October, 1933, she

was physically well preserved. The cardiovascular system functioned adequately. The blood pressure was 160/80. Ophthalmoscopic examination revealed tortuosity of the smaller vessels of the fundus. The thyroid isthmus was palpable. Deep reflexes were moderately exaggerated. There were no abnormal laboratory findings.

She exhibited a tendency toward depression with tenseness, suspicion, and misinterpretation. The stimulation of the admission procedures temporarily dissipated the depression, but very soon she was presenting a picture of agitation, crying loudly, wringing her hands and expressing the fear that she was losing her mind. She condemned herself for making accusations against people, realizing at times that the accusations were without basis.

She wandered restlessly about with a rosary in her hand. Her speech contained many statements of a religious nature. "I feel that my church has thrown me out and my people don't want me and my soul is lost. I want to go home to die. I've tried and tried, but I can't see Jesus." She was temporarily comforted by visits from her priest, but soon her depression and self-accusatory trends would reappear. She constantly misinterpreted innocent remarks, declaring that someone said she was no good, that she was going to be taken to the cellar and whipped, and that she would die like a dog because of her sins. There was considerable fluctuation of mood. During periods of comparative calm, she admitted that she had imagined many things she had stated as fact.

Gradually she grew worse. The agitated depression, restlessness, hopelessness and self-accusation became more constant. She became resistive to feeding and occasionally had to be tube fed for short periods. She lost weight rapidly to the extent of 65 pounds. The idea became fixed that nobody wished to have anything to do with her. When she was told that two of her brothers had died within a short time, she was too preoccupied to pay much attention to the news and showed little sign of grief. Sometimes she was assaultive and frequently she was destructive, usually attacking window glass with a shoe or any other convenient weapon. Although she frequently

declared that she should be done away with and threatened to take her own life, she never made any actual suicidal gesture. Recently she began to express the fear that all of the other patients were about to leave the hospital and she was to be left alone. She also frequently asserted that she had no soul and that she was nothing but a block of wood.

On February 12, 1938, the patient, together with a dozen others was seen by Dr. Walter Freeman and Dr. James W. Watts. Her attitude of hopeless agitated depression was so striking that she was immediately chosen as the type of case most likely to be benefited by prefrontal lobotomy, therefore permission for the operation was obtained from responsible relatives. The patient was also consulted and while evidently having little conception of the procedure involved, expressed herself as anxious to have anything done which gave promise of relief since death was preferable to her miserable state.

OPERATION: On March 11, 1938, bilateral prefrontal lobotomy was done by Dr. Francis C. Grant, the technique being as follows: a line was drawn parallel to the zygoma for 3 cm. behind the external canthus of the eye. From that point a line was drawn upward 5 cm., where the skin was marked symmetrically on either side of the head. Under avertin and novocaine anesthesia, incisions were made at the points marked. Trephine openings were made and the dura incised. A special cannula with a cutting loop was inserted into the cortex and directed toward the trephine opening on the opposite side of the head. At a depth of 6 cm. a core was cut, the loop was retracted, the cannula withdrawn 2 cm. and a second core cut. Again the cannula was withdrawn 2 cm. and a third core cut. After each coring a drop of lipiodol was injected through the cannula. The cannula was then withdrawn, a spud inserted along the tract made by the cannula and the lesion extended downward to the base of the frontal lobe until the bone was encountered. A similar procedure was carried out on the opposite side. Following the section of the second lobe with the spud, there was a drop in pulse rate and blood pressure. There was no other evident change and by the time the wounds were sutured and dressed, pulse rate and blood pressure had arisen to their former values.

POST-OPERATIVE COURSE: The effect of the anesthetic subsided promptly. Examination disclosed no abnormal neurological signs. Within four hours she was able to say a few words. There was complaint of pain in the head, some restlessness and nausea. Pulse rate and respiration continued uniform. Blood pressure varied little. She had to be watched carefully to prevent her from getting out of bed. She attempted to remove the dressings from her head.

On the morning following the operation she told her nurse that she had had a baby and asked to have it brought to her. She was not concerned about this and later said she had dreamed it. During the 24 hours following operation she frequently declared she was depressed, but she explained that this was because she was sick and had a headache. On the following day, she was bright and cheerful, and was delighted that her head no longer ached. She was able to enjoy her meals and was much more cooperative than she had been heretofore. She was oriented and remembered events up to the time the anesthetic was started. During this time she showed some tendency to repeat statements over and over. With a little effort, however, she could carry on a sustained rational conversation. She talked freely about her previous delusions, thought some of them might be true but was not at all concerned over whether they were true or not.

On March 14, the following conversation took place:

"Do you remember how you felt before the operation?"

"I felt dizzy headed just like I feel now, but this head hurt all the time. It doesn't hurt now."

"Do you remember how you worried about all the other patients going home and leaving you all alone?"

"I don't worry about it now. I don't care whether I go home now. I don't let anything worry me now."

"Do you remember how you used to condemn yourself and talk about the terrible things you had done?"

"I saw things outside my window, they looked like animals, like anything but human beings. I saw them at night, never in the daytime."

"Do you suppose you imagined those things?"

"I think they were put there by some of the doctors."

"Why should they do it?"

"I don't know."

"Do you feel now that you are such a bad person?"

"No, I don't feel that I am bad now. I have been cured! Thank God! I have been cured! and I am glad of it."

"Do you remember saying you had no brain?"

"I don't think I have yet."

"I saw it Friday."

"Honestly and truly I have a brain? Thank God! I have a brain. I didn't think I had any. I thought this was an empty box up here."

She went on to say that she felt about 18 years old, that she could not remember when she had felt so good. She declared that she had had no peace for more than four years. She spoke of having constantly had a feeling as of a tremendous weight pressing upon her head but declared that the sense of weight was entirely gone. She no longer reacted to things that previously were so irritating to her. Her attitude was carefree, her mood mildly euphoric. She was interested in plans for her future, but not worried. She was fully aware of the great change and was inclined to be a little emotional when discussing it.

A comparison of the results of psychometric examination done a month before operation with that done three weeks afterward show the two to be almost identical. There was some improvement in practical reasoning ability in the latter. Speed of response was greatly increased at some sacrifice of accuracy.

No post-operative complications arose and the patient left the hospital on March 30.

Since leaving the hospital she has been able to make a most satisfactory adjustment. Upon first returning to her home town she was rather timid about going out. This timidity was quickly overcome and she has entered normally into the social life of the town. The slight euphoria and over-talkativeness exhibited upon first returning home has disappeared. She lives with a sister who is in poor health and she is quite helpful in the household. Her relatives feel that she has entirely recovered.

COMMENT

This case is one in which the results were entirely those hoped for. The disappearance of agitation and depression in spite of persistence of part of the delusional content, suggests truly a loss of the ability to worry or feel depression. Post-operative course was singularly uncomplicated. Psychometric results before and after lobotomy indicate that it is possible to obtain the effect desired without appreciable sacrifice of intellectual function. It is encouraging to note that there has been continued improvement since the patient left the hospital.

The operation has since been done on two other cases of similar type. In both the results thus far are encouraging, but we feel that it is too early to attempt any prediction as to the outcome. All cases have been equally free of post-operative complications. During the next year we expect to extend our series, and it is our hope that further study will confirm the present promise of help in one of our most difficult problems.

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STATUS EPILEPTICUS COMPLICATING INSULIN SHOCK THERAPY

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The widespread undertaking of insulin shock therapy by a large number of workers in this country has resulted in the appearance of a number of complicating problems, some of which have as yet no satisfactory solution. Such disconcerting and unexpected complications as prolonged non-hypoglycemic stuporous states, for example, have forced those working with this therapy to evolve schemes of management to combat them. The earlier literature from foreign sources was silent concerning some of these serious problems, or treated them only in a general way. Both the European and American literature on these subjects are happily being elaborated now, so

that more exact information concerning the experiences of others is becoming available.

One of these complications, fortunately rare, is the occurrence of a status epilepticus, which does not yield to administration of sugar in any form. The earlier works concerning insulin described the occurrence of isolated seizures, and these writers recommended adrenalin and glucose to be given immediately in such cases; but no cases of status epilepticus were described. The seizures themselves are, of course, common. Sakel⁽¹⁾ described them at length, and Lemke⁽²⁾ in a more recent article, mentions their occurrence in 27 out of 46 patients, which is perhaps about the average experience. Other writers have hinted at the occurrence of a real status, but case reports have been lacking until recently. A case from our own experience will be described here.

J. S., male, age 28, diagnosis dementia praecox. He had been in the present attack for over two years, but had also shown some mental symptoms once over seven years before. He was a morose, uncommunicative individual with some paranoid tendencies. Insulin therapy was started late in 1937; this patient was one of the first group treated by the writer. He went through the first phase of treatment uneventfully, and a state of coma on the tenth treatment day, with 160 units of insulin. On the following day with the same dosage, a convulsion occurred at 9:20 a. m., a little over two hours after the insulin was given, and before any coma had occurred. He received 60 c. c. of a 33% glucose solution intravenously, and later, after recovery, received two tube feedings, containing a total of 205 grams of sugar. He refused other food, however. Again at 2 p. m. and 3:10 p. m., convulsions occurred, and intravenous glucose was again given. At 4:15, following a fourth seizure, the same treatment was repeated and no further seizures occurred.

After three days of rest, treatment was resumed, as some mental improvement was manifest. Two more treatments were passed through uneventfully. On the next treatment, he vomited after lunch but retained egg-nog containing sugar. At 4:10 there were a few slight muscular twitchings, but no other signs of shock. He ate a large meal at about 4:30, and apparently felt quite well. At 5:30 p. m.,

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he suddenly had a violent epileptiform convulsion, with tonic and clonic phases and marked cyanosis; he received one c. e. of adrenalin, followed in a few moments by 60 c. e. of the 33% glucose intravenously, and three grains of phenobarbital sodium hypodermically. There was then a series of ten convulsions, three of them very severe, and at 8 p. m., he received 60 c. e. of glucose and following two more immediate seizures, it was decided to administer five grains of phenobarbital sodium intravenously. This stopped all convulsions for about one and a half hours, though twitchings continued. Six mild seizures then appeared in rapid succession, and four grains more of the same drug was given intravenously at 11:10 p. m. Except for two very mild attacks, there were no more seizures until 5:50 the next morning. His general condition had improved with rest, and it had been possible to administer some fluids containing sugar by mouth, though he was somewhat stuporous. During the early morning there was a recurrence of muscular twitchings, followed by four mild seizures; at 7:20 a. m., therefore, a final dosage of five grains of phenobarbital sodium was again given intravenously, and all but a few slight twitchings ceased. The following day, though he was drowsy, his general condition was good. Treatment with insulin was never resumed, as it was believed to constitute too great a risk to life. Subsequently he has made a definite mental improvement, as evidenced both by his behavior and by standard psychometric tests. The Stanford-Binet test, for example, showed a gain of fifteen points with a final I. Q. of 92. At the present time the patient is having some difficulty in making a permanent adjustment outside the hospital, due to environmental handicaps, but improvement is still present, seven months afterward. It is noteworthy that he had only five shocks altogether, and that improvement was not noted until after the first series of convulsions.

An interesting case, somewhat similar, has recently been reported in detail by von Braunnmuhl⁽³⁾. This patient was a woman who went through eight shocks without complications, and developed a state of status epilepticus on the ninth, with a dosage of 88 units of insulin. The patient awoke normally, but vomited the tube feeding on waking. Adrenalin was given at this point, though ex-

perience has since shown that intravenous glucose is a more proper preventive of complications after vomiting. Within five minutes the first epileptiform seizure occurred, and intravenous glucose was then given. The seizures continued, and adrenalin, glucose, caffeine and strophanthin were administered at intervals. It was not until four severe seizures had occurred that one-half gram of phenobarbital sodium was given; the mode of administering it is not stated. The seizures continued, other stimulants were given, and later a second injection of phenobarbital sodium. The state was finally terminated about three o'clock the following morning, and the patient recovered. Mental improvement was noted for four weeks, following which the patient relapsed to her previous mental state. Of interest in this case is the tremendous amount of various medications which was given. There were repeated inhalations of oxygen and injections of adrenalin, caffeine, lobelin, strophanthin, and camphor; and enormous amounts of intravenous glucose were used, all without any effect on the seizures.

The pathogenesis of these states is still problematical. In our own case, a careful review indicated the possibility that the patient may have been in a long continued state of very mild hypoglycemia, as the evening meal was the first solid food taken, and it may not have been absorbed before the onset of the condition. In the other case cited, it seems more likely that some cerebral irritability produced in the coma itself was responsible. Neither of these patients had been in coma for an excessive length of time. Whatever the origin, it is definitely true that, once established, the state is self-perpetuating and unaffected by administration of sugar. It appears that the continuance of the seizures is adequately accounted for by the presence of an intense irritability of the central nervous system, probably the cortical areas, and thus a vicious cycle is present. For that reason, the prophylaxis and treatment of the condition may be aimed at preventing this state of irritability where possible, by limiting the duration of shock and making impossible a continued hypoglycemic state; and where such a condition has become manifest, by raising the threshold of irritability by recourse to a seda-

tive drug which can be administered intravenously.

Though phenobarbital sodium was the drug of choice here, it is probable that sodium amytal would be correspondingly efficient. The intravenous route is to be preferred in order quickly to utilize the maximal effect of the drug and preclude the necessity for prohibitive doses. An objection to such sedative therapy is, of course, that it may mask the signs of recurring hypoglycemia. In later work, where these drugs are given, it has been our practice to administer a small amount, probably 20 c. c., of the glucose solution about every two hours, until there is no further probability of such an occurrence. In view of the fact that with insulin shock we are usually dealing with an individual without serious physical complications, no bad results may be expected from reasonable use of these drugs. We have also noted that epileptiform manifestations can be halted much more readily if treated adequately and early. Probably not more than two seizures should be permitted to occur before energetic measures, in addition to glucose, are taken to stop their progression. The use of stimulants in addition is, naturally, governed by the condition of the patient. Adrenalin and camphor are theoretically to be avoided because of their possible spasmogenic action. In our own hands, adrenalin has been practically useless in any complications; it has failed to stop epileptiform seizures as well as to have any effect on prolonged stupor or wild psychomotor excitement following shock. It may, of course, be valuable in case of extreme need for a powerful stimulant.

The conclusions of von Braunnmuhl concerning the prevention and treatment of these states is similar to those given here, except that he apparently depends chiefly on intramuscular medication. He states that (following administration of glucose) "If one does not succeed with that, and particularly if a new seizure occurs, it is important to support the cardio-vascular system from the beginning. If the epileptic seizures accumulate, one should start immediately with the therapy generally chosen to combat the epileptic status. That is, one should give one ampoule of Strophanthine (strophanthin) and one ampoule of sodium luminal intramuscularly. If then

symptoms do not subside, one does not wait but gives the same amount of sodium luminal again. It is presupposed that adrenalin subcutaneously and glucose intravenously in sufficient amounts have already been given, as before, during and after the epileptic seizure, the absorption of sugar from the stomach may be insufficient, or may even cease altogether. Even in these very dangerous situations we are, however, sparing of adrenalin, as adrenalin in the presence of a very high blood sugar can cause an increased spasmogenicity, instead of an increase in the blood sugar level, a fact which Sakel emphatically stresses himself."

Since the case described here was treated, a similar scheme of treatment has been successful in aborting at least one other case of beginning status epilepticus. It has also been found useful in preventing exhaustion in the occasional cases where an uncontrollable excitement appears after shock. In any of these complications, no drug should be given without a clear indication for its use; a complicated, unsystematized treatment leads only to physiologic and pharmacologic confusion.

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ON THE CHARACTERISTIC FEATURES OF INSULIN COMA

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A wealth of interesting data on the insulin shock therapy of dementia praecox has been gathered, yet to the critical reader it seems difficult to believe that there exists a unanimous opinion about many problems which the insulin therapy has brought forth. Sakel himself states: "The technical side of the hypoglycemic treatment in itself tells us nothing about the most important factors in the treatment, namely how each individual case has to be managed." In other words, despite a fairly strict outline of the method of treatment, the insulin reaction has to be adapted to the requirements of the individual case, and these requirements are of a complex character. They are dictated by the physical and mental

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status of the patient, by the highly individual type of reaction to the therapeutic agent (the individual shock form) and by its final resonance in the mental sphere.

No doubt, as heterogeneous a material as presented by the vast number of patients afflicted with dementia praecox of various etiology, form and duration, largely handicaps the desire to cling to hard and fast rules and methods of treatment. On the other hand, numerous unexpected difficulties encountered during the application of the insulin therapy cast a shadow of doubt on all too optimistic reports.

On account of so many factors of danger and risk, any actual state of insulin shock or insulin reaction has to be regarded as a critical event requiring the utmost skill and mastery on the part of the supervising physician.

Though the technical part of the insulin therapy has been excellently described and widely discussed, certain rather vexing problems have found relatively little attention and still less satisfactory answers. We possess a large number of detailed reports on clinical observations and clinical results. Many satisfactory descriptions of the clinical aspect of the insulin coma are available from the literature. Yet none of them excepting very few give information as to the specific features of the onset of insulin coma.

To some investigators the obvious lack of a satisfying definition of the insulin coma has become an object of complaint and worry, and reasonably so. If we want to accurately determine the duration of the insulin coma, we should not be merely contented with a calculation of time depending on the moment of the insulin injection or on the moment we are able to state the first signs of sensorial clouding. We have to fix the moment of the onset of coma as rigidly as possible. We have to know it in order to determine the moment we have to interrupt the treatment unless some unexpected complication arises which forces us to discontinue the treatment before the calculated time. Even for common uneventful types of insulin coma, there is, up to the present, no therapeutically optimal time limit established. The duration of the coma, according to Sakel, is prescribed by the rule of safety. In keeping with the classical formula, the insulin coma should not be extended beyond a

period of one and one-half hours. Though the majority of the authors have accepted this limit, it has not generally been adopted for various reasons which we do not intend to discuss here.

At any rate, in order to be able to measure the duration of coma, we have to come to an agreement on the phenomenological aspect of the insulin coma. It is no easy task to delineate and classify the multitude of neurological manifestations of the insulin reaction. Many reports deal with the symptomatology of insulin coma in a more or less superficial manner. To some psychiatrists, the neurological study of the insulin reaction is of mere academic value, and is, in addition, a highly dangerous enterprise because of the exposure of the limbs required by various test procedures and by need for closer observation.

One has to realize that the neurological signs, in the insulin reactions, are more or less inconstant and fleeting, yet substantial in constituting the phasic course of the insulin reaction. We owe a valuable guide to the observation of the various types of motor phenomena associated with insulin shock to Von Angyal, whose excellent scheme has been adopted by Frostig and Von Braunmühl. Other classifications have been introduced by Golden, Feldhofen, Byehowsky and numerous other investigators.

Another troubling fact is that we have only a crude scale of degrees of impairment of consciousness and only arbitrary ways of measuring it. In spite of these difficulties we hope to gain from listening to authoritative advice.

It seems to be appropriate to compare Sakel's classical with non-classical views in an attempt to reach valid concepts as to the understanding of the problem of insulin coma. Sakel (1935) states in his monograph (p. 9) that the state of coma is reached after a period of increasing somnolence which at times may also be interrupted by psychotic excitations. "This coma can attain a varied degree of depth. In the somnolent phase, the patient still can be aroused, yet contact is no longer possible. There are still all reflexes present, one can even, by very energetic calls, induce the patient to a reflex swallowing. Gradually the coma increases in depth. All reflexes disappear.

"Already in this phase, pathological reflexes appear: Babinski, Oppenheim, Mendel-

Bechterew, etc. On waiting longer, coma can attain such depth that all reflexes including the swallowing, corneal and tickling reflexes, even the pathological reflexes which have appeared in a former phase, are extinguished, i. e. complete areflexia with complete muscular atony."

More recently (1937) he said cursorily that "coma should be associated with the absence of the corneal reflex or at least with the presence of a Babinski."

It seems to us that neither the more elaborate nor the brief description of coma is sufficient to establish the transitory phase of the beginning coma. Wilson, in her study (1937), gives the following formulation: "The patient becomes drowsy. He may be regarded as deeply drowsy when he stirs, but does not reply when touched or emphatically spoken to. He may be regarded as comatose when the corneal reflexes have gone. When the light reflex of the pupils is lost, he is in very deep coma—this may be taken, with other findings, as an indication for interruption."

In our own experience, the pupillary reflexes become impaired before the corneal reflexes ever show any definite decrease, and usually the pupils get nearly or completely fixed to light before the corneal reflexes ever become lost. Therefore we often combine the absent corneal reflexes with a deeper state of coma than the lost pupillary reaction. We also found states of coma with corneal reflexes still present.

From Von Braunnuhl's excellent monograph (1938) we quote verbally: "Semi-shock or precoma is present, in our opinion, when in the hypoglycemic state pronounced motor disturbances (clonic jerks) appear, or the patient, on account of his drowsiness, is no more able to drink the sugary liquid himself. Shock or coma is manifest the moment unresponsiveness of the patient to call or to sustained touch occurs, thus the patient cannot be, by any means, brought back to any degree of consciousness, i. e., wakefulness.

"The semi-shock is recognized by observation of the patient as to the appearance of myoclonic phenomena or by testing his ability to drink (M. Muller). The shock or coma is recognized by attempts to arouse the patient beginning with weak stimuli such as calling,

shaking or tugging, and then, passing over to stronger stimuli.

"Patients who do not respond any more to a pain stimulus like pinching the arm with defense movements pointing to recognition of the stimulus (hand movements toward the stimulus, fixation of the examiner with the eyes, a 'telling' grimace) are called 'unwakeupable' (Kuppers)."

Von Braunnuhl rejects M. Muller's idea of counting the shock "from the moment of the inability to drink" as well as that of Frostig who advised to count it "from the moment of the appearance of phenomena of motor irritation." He also regards the testing of the reflexes as unsuitable and unreliable—particularly during the later phases of the insulin reaction.

While discussing motor phenomena, he states, however: "Tonic spasms frequently met with as symptoms of shock, flexion spasms and extension spasms, are signs of deep shock. Since they increase on stimulation, one should, if possible, let the patient alone."

According to Frostig, "Coma is a condition of deepest sopor from which the patient can no longer be aroused by any stimulus. In cases in which the blinking and corneal reflexes have disappeared and a Babinski sign is also present, one can already speak of deep coma."

What about cases that do not show a Babinski at all? Reese and Vander Veer hold that in coma "the patient may move about or open his eyes, but is never in contact with the environment."

If we follow Cameron and Hoskins, "Coma is present when the patient can no longer swallow—when, if he is turned on his side, saliva tends to drool from the mouth, or when, on the eyelids being drawn up, the eyeball is found to be wandering slowly in the orbit."

From these few citations, it becomes evident that the authors have, more or less successfully, tried to differentiate the increasing degrees of sensorial clouding and to mark certain steps in its progression by their relative symptomatology.

To most of them the problem is crystallized around the factor of response to exteroceptive stimulation of various types and intensity. The earliest moment, then, indicating failure

to respond to exteroceptive stimulation, would constitute the onset of coma.

Probably on the basis of Sakel's reports, many authors still seem to attribute a certain value to the study of reflexes; it seems as if their importance has been, at first, exaggerated. In our own view, they still do have some meaning yet only within the specific reaction set of the individual patient.

The same holds doubtlessly true for certain motor or tonic phenomena termed flexion spasms and extension spasms (Von Braunnmuhl), pyramidal spasms and torsion spasms (Von Angyal) or merely "spasmodic waves" according to our own nomenclature, a name that seems to do justice to the particular character of spastic-tonic changes occurring in the state of coma.

These motor phenomena, however, merit special consideration.

One has to realize that the state of motor stimulation, just as it does in the well-known types of motor epilepsy, includes and represents a certain sensorial limitation on one hand and a restriction of the capacity to respond to stimuli above the reflex level on the other.

We find this principle verified by a variety of motor phenomena appearing in phases of the insulin reaction prior to coma. Myoclonic jerks occasionally start relatively early and usually are combined with some degree of clouding. They frequently appear in accumulated discharges. As soon as these have passed over—or during the interval periods, the patient may again be as well responsive as before.

During states of violent psycho-motor excitation so frequently combined with unusually noisy reactions, the patients' rapport with his environment is markedly decreased.

During the phase which is characterized by the presence of primitive movements in the oral sphere, by grimacing, primitive pseudo-hysterical movements of the body and limbs we find a regression of the speech mechanism as well as a distinct sensorial deficit, indicating precoma.

The "spasmodic waves" represent an analogous phenomenon to the state of coma, as already stated above.

We may be allowed to stress again the importance of this particular point: During any

phase with increased output of motor energy, we are apt to find a sensorial deficit according to the type of the motor phenomena that is characteristic of a special phase of the insulin reaction. Thus, our methods of testing stimulus responses are likely to yield more reliable or other results in "quiet" comas than in comas with marked motor reactions.

On the other hand we see no reason to discard certain types of motor phenomena as means of determining the actual phase or degree of sensorial clouding. Though multiform in appearance they are extremely impressive, to the experienced observer not less than to nurses or attendants who are in charge of the "insulin group." Spasmodic waves are occasionally mistaken for epileptiform reactions by the less initiated. Their very onset gives us, though still an arbitrary, yet reliable time mark.

Other valuable marks are recommended by Cameron and Hoskins (see above). Drooling of saliva is significant in many patients, its first appearance fixing fairly reliably the onset of coma. Unfortunately some patients of our observation have never shown it regularly. The slow wandering of the eyeballs in the orbits, recognized by Von Angyal as an abortive torsion phenomenon, would serve, on its first occurrence, the purpose of determining the onset of coma as well as other tonic or torsion phenomena.

In agreement with Von Braunnmuhl, there is no real need for a drinking trial though it may be of value as a test of precoma. The average patient disposes of his saliva in a natural way: by reflex swallowing or by reflex coughing. We can accelerate the drooling of saliva by passively turning the head to the side, knowing that the abundant production of saliva in the absence of regular swallowing is a fairly reliable characteristic of the onset of coma. As a matter of fact, we do not believe that we are in need of a drinking test for any phase of the insulin shock, and particularly for precoma where the degree of clouding can only be speculated.

Our own idea about the problem of the determination of insulin coma may be summarized as follows:

- A. There is no single abnormal neurological sign that is indicative of coma.
- B. Though one may find a set of altered

reflexes in coma, it is not admissible to conclude from the reflex changes, the degree of clouding.

- C. The insulin coma is practically a final link in the chain of progressive clouding which, in turn, is at least a partial expression of changes involving the central motor sphere (by analogy with epilepsy).
- D. Thorough knowledge of the various tonic, motor and reflex phenomena will help to define the onset of coma in the individual case.
- E. Drooling of saliva from the mouth has, in the writer's experience, been a reliable time mark for the onset of coma in all cases manifesting it.
- F. The determination of insulin coma by result of absence of response to exteroceptive stimulation is, as a sole test, insufficient and arbitrary.

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A CLINICAL STUDY OF A CHILD WITH PROBLEMS

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The study of the child with problems has been given a major place in the field of mental hygiene. The complexities in behavior that arise as the child emerges from the undifferentiated responses present at birth to the forms of more specialized behavior attending the processes of physical, emotional and mental maturation are manifold even in a relatively normal child, but in the child with problems they challenge the diagnostic skill of the keenest observer. Diagnosis becomes increasingly difficult because stimuli activat-

ing dynamic behavior are not specific, variability in the type of response being determined by multiple and complex factors, such as the age and health of the individual, his previous experiences and his mental endowment, as well as by environmental factors. Since behavior is the summation of the responses of an individual as a whole to stimuli arising both from within and from without, it follows that its interpretation demands an analysis of both the dynamic and the genetic aspects involved. Such an approach to an understanding of behavior divides itself logically into a study of the situation to which the individual must react, and a survey of both the assets and liabilities which the individual possesses to react with.

The following case is presented because it offers many possible etiological factors from which a selection of the predominant cause or causes of the child's problems must be made. A thirteen-year-old boy is referred primarily as a school problem because he is lazy and making poor school progress, is easily discouraged, nervous, seclusive and not interested in the usual healthy activities of boys. He is unable to concentrate, lacks all interest in school subjects and does not even make an attempt to do his daily assignments. He began school when six and one-half years of age, repeated the fourth grade and is now in the sixth grade. His scholastic progress has always been slow but his work this year is so poor that he will probably not be promoted.

In appearance the boy is attractive, and clean and neat in dress. During formal interview he is quiet in demeanor and offers but little spontaneous information. Answers to questions are brief, inadequate and frequently evasive. He does not discuss his thoughts or emotions. He neither criticizes others or displays any self-criticism. He is easily distractible and gives the impression of being preoccupied. He exhibits no appreciable variation in emotional tone. He remains consistently unobtrusive.

All available information indicates normal birth and development. His health has been very good. Except for the usual diseases of childhood he has had only one other illness, a chorea three years ago, which, since he was not compelled to discontinue school, may be

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assumed to have been of a mild nature. He still suffers from nocturnal enuresis.

His parents separated when he was two months of age. His mother supported herself and her child by working as a domestic. She obtained employment in a home where she was permitted to keep the boy with her. He amused himself with his toys and in other solitary play. She did not permit him to play with other children as he grew older and the only contacts he had with children of his own age occurred when his mother visited relatives or friends. On such occasions he showed timidity in the presence of adults, but took part in play with the children though he always followed their lead and never initiated new activities. When he began school he was sent to live with his father and paternal grandparents. During the summer vacations he returned to his mother. She noticed that he was no longer as obedient but frequently defied her and she thought that he was becoming unruly. She consequently decided after two years to again assume custody. She states that she soon re-established satisfactory discipline without undue difficulty. His father still visits him regularly but at very infrequent intervals. The mother said that the father never liked the boy, never treated him well and even went so far as to tell the boy that he doubted being his father.

About the time the boy returned to his mother she remarried. The man she married was divorced and had a small daughter. The boy is reported to be very fond of his step-father and step-sister. Neither the mother or step-father shows favoritism toward either child and their home life gives the impression of family solidarity.

No direct contact with the boy's father is possible at present and the only estimate of the father's personality is made from information furnished by the boy's mother. She described him as a man without ambition or interests. He made no attempts to shoulder responsibility. He always depended upon his own mother for help. The history of the boy's mother indicates an early social maladjustment, but her behavior since her second marriage has been above criticism. She volunteered the information that her mother and a sister are mentally deficient.

This brief social history represents but a short summary abstracted from a large amount of material of what may or may not prove to be important in the production of this boy's deviations from the relatively normal in temperament and behavior. It suggests many questions and the answer to any one may or may not point the way to diagnosis and treatment as well as to prognosis.

The most important questions group themselves around the following considerations: A, heredity; B, feelings of emotional security; C, the relationship between the boy and the group; D, the boy's interests; E, the relationship between the boy and the school; F, the boy's intellectual endowment.

The answers to these questions are obtained not only from the social history but from an evaluation of facts ascertained by a psychometric examination given by the psychologist, and psychiatric interviews by the examining psychiatrist.

Discussion of the above topics will be considered in the order of their formulation.

A. Heredity. We have learned that the boy's father is probably a maladjusted, unstable individual with personality defects. We know that at least two members of the mother's immediate family are mentally defective. While such facts are far from conclusive, they cannot be entirely ignored as possible hereditary determinants in the boy's behavior.

B. Feelings of Emotional Security. The infant is born into an alien world, the most helpless of mammals; for a long period dependent upon parent or parent substitute for safety and protection. Feelings of security are communicated to him through the channels of parental love. All situations which interfere with the communication of this love, whether they be conflicts between or within the parents, their separation or their death, or whether they be caused by the pressure of external circumstances, can diminish or destroy the feelings of satisfaction the child should find in the love of its parents. As the child matures it requires freedom for the exercise of increasingly complex functions. The over-solicitous and over-protective parent may prevent a child from ever reaching emotional maturity; the over-strict parent may provoke antagonisms for which the grown man or woman

must answer; too frequently with disastrous consequences. The child must be given an opportunity to gradually become an independent being capable of competing in an unkind world. All striving is toward a goal. The child cannot formulate an ideal but must accept the ideal it finds at hand, whether that ideal be high or low. It is a function of the parent to serve as the concrete embodiment of this ideal. Unless the parents fulfill these three important conditions the child may be expected to display personality problems.

The social history of the boy whose problems we are attempting to understand indicates interference with all three of these conditions: (1) the satisfaction of parental love may have been influenced by the separation of the parents and the father's suspected rejection of the boy; (2) the mother may have inhibited or suppressed the boy by curtailing his opportunities for social contacts with other children during the first six years of his life; (3) as far as we can judge the father did not present satisfactory ideals. We need not depend only on the mother's statement that the father disliked the boy and treated him unkindly. Though the boy was not productive in talk, when questioned on this subject he said, "I guess my father does not like me." When asked his reason for believing this he was unable to elaborate further than to say "From the way he treated me." The discussion of this topic produced no discernible emotional reaction. That the boy's feeling has a basis in reality must be accepted, since he has not heard his father's behavior discussed by others. When asked whether he likes his father he quickly answered, "I like my step-father." Whether a real rejection of the boy by the father exists because the father wants to avenge himself on the mother, whether, after all, the mother's attitude has produced a feeling of rejection in the boy, or whether there even is a true rejection, would not modify the effect upon the boy as long as he believes that he holds no place in his father's affections. But not all children subjected to such an emotional situation show identical responses. Where one child may develop retaliative behavior another will seek affection elsewhere, while yet another may remain immune to personality

defect. Further details of the relationship between the boy and his step-father indicate that the boy feels no lack of affection. Though the mother is a nervous type of woman she has been affectionate, kind and patient. Since her second marriage, which took place when the boy was seven years of age, she has not been over-protective. Her husband is an intelligent individual, with a keen insight into the boy's problems and both have given him every opportunity for normal adjustment. Both maintain standards of behavior acceptable as ideals. Yet the boy gives little tangible evidence of identification with either. Nevertheless, the family interrelationships present a solidarity in which we may feel assured that the boy feels emotionally secure.

C. The Relationship Between the Boy and the Group. Though the boy is well liked by other boys he takes no initiative in forming friendships and contributes nothing toward group activities. He never defends himself but runs away from a fight or the prospect of a fight. This is significant in view of the mother's information relating to his serious maladjustment for the first two years among the group in the school to which he changed following his return to her. She states that "he had a terrible time; the boys teased him and fought him, just to see him run." It is also significant that he has formed but one solitary friendship with a boy who also presents a serious problem in that he has a schizoid personality and an extreme defeatist pattern of response. Recently he has shown some interest in playing ball with a small team, but this end was achieved through the persistent encouragement of his step-father. The boy's attitude toward the group as expressed during formal interview was one of indifference rather than one of either like or dislike. His parents have forbidden him to associate with his one chosen friend. He relates this without show of resentment, apparently submissive to their wishes without question or defiance.

D. Interests. Parents and teachers alike particularly note the boy's lack of interests. In school this lack of interest is expressed as seclusiveness in group activities and in scholastic subjects ranges from poor concentration and easy distractibility to an inability to make an attempt to do assignments. Though he

does not remain idle at home his participation in any one form of recreational activity is fleeting. When asked what he likes best he replies after long hesitation, "fishing." He usually goes fishing by himself. His preferred interests are those by which he can amuse himself alone or with his step-sister since he has been forbidden the companionship of his only friend.

E. The Relationship Between the Boy and the School. In spite of his lack of interest in school subjects the boy does not dislike school. Neither does he dislike his teachers. His attitude is one of expectation of failure and he requires constant encouragement to sustain effort. He feels so inadequate that he cannot make a spontaneous effort.

F. The Boy's Intelligence Endowment.

Terman Vocabulary			
Test:	CA: 13-0	MA: 12-0	IQ: 92
Cornell Coxe			
Performance:		13-4	102
Goodenough Drawing			
Test:		10-6	81
Stanford Binet Test:		11-8	90
Digits Reversed:		8-9	67
Reading grade	5.8		
Spelling grade	4.7		
Arithmetic grade	4.7		

The tests rate this boy average in intelligence but reveal deficits in certain mental processes. The psychologist states that his ability in handling concrete manual tasks is not only average but even, but that he encounters definite difficulty in dealing with abstractions. His observational powers seem to be limited. This may be due to disinterest and lack of sustained concentration.

Achievement is below grade placement in all subjects. Arithmetic is inferior because of lack of sustained effort and inability to deal with abstractions. The lower spelling grade may be a function of poor auditory memorizing ability.

SUMMARY

We are now ready to summarize and evaluate our findings, bearing in mind that a child's problems are an expression of a dysfunction in which the whole organism is involved and not ordinarily the outcome of any one isolated component.

A physical basis for this boy's problems could not be demonstrated. He possesses a strong, sound body, free from discernible neurologic defect. From the psychogenic viewpoint we observe a boy of average intelligence

whose mental state is best described as autistic, characterized by poor attentional control and profound lack of interest. In his behavior he presents to a marked degree the defeatist pattern of response. He seems weighted down by feelings of inadequacy and a sense of frustration.

This case illustrates lack of inspirational values, lack of satisfactions gained from successful achievement, and an absence of anticipation of reward and praise. These deficits have been most apparent during the valuable formative years marking a transition from infancy to juvenile life. During the years in which he should have had freedom to experience healthy give and take relationships with other children he was denied this opportunity. The boy's social attitudes were determined largely by his lack of experiences before he started to school. The knowledge of rejection by his father during at least his first two years of school life accentuated these attitudes. His learning habits are undeveloped because of temperamental deviations produced in the main by environmental controls. It is noteworthy, in view of his disinterest, lack of concentration, and absence of incentive and reward that he has achieved his present level.

This boy is in need of individual coaching, which may be confined to any one subject, not so much to gain a mastery of the mechanics of learning a certain subject as for the amelioration of temperamental deviations to be obtained by giving him inspiration and the hope of success and reward. He is in need of special guidance in play technique with a select group of boys from which he may derive the benefits of competitive play and feel the satisfaction of successful performance.

CONCERNING SEDATIVES

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In any hospital caring for mental and nervous patients the problem of quieting the agitated, noisy and sleepless individual is a major one. Extremes of overactivity must be controlled both to prevent the individual patient from exhausting his own reserve nervous vitality and also to prevent him from re-

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tarding the recovery of other patients who must live on the same ward with him.

Ideally the overactive, and usually noisy, patient may be rendered quieter by one or more of several procedures. If he is not extremely agitated, some form of handiwork, complex enough to interest him and simple enough not to overtax him, may produce the desired result. If by such a method we can induce natural fatigue and sleep, we may consider the problem most happily solved. Unfortunately, however, the situation is not usually so simple.

Hydrotherapy either in the form of a wet pack or the continuous tub is a splendid sedative for the excited manic whose physiological functions are intact, but it is obvious that the number of patients who can be thus cared for must always be somewhat limited by physical considerations and that its use is usually altogether impracticable in private practice.

Physical restraint while it may temporarily prevent the patient from injuring or exhausting himself or doing violence to others is at best a makeshift to be resorted to only when other methods have failed, or in emergencies. Its long continued use is generally to be regarded as pernicious, though there are patients for whom it seems to offer more good than harm. A patient who persistently saturates her entire body and clothing with water is probably better kept in a light fitting camisole than under the continuous influence of hypnotics. The seniles who dig into their own flesh or tear their clothing to shreds until they are practically unclad present problems which are probably best met by restricting the movements of their hands with mits or light canvas restraints. When the balance is struck, however, there still remains a majority of our disturbed patients for whom we must depend on chemical sedatives and hypnotics.

While the number of individual drugs which from time to time have been and still are used as hypnotics is very large, they may be grouped under the following heads: the bromides; the alcohols and aldehydes; the sulphones; the barbiturates; the narcotics.

In our present relatively advanced state of physiological chemistry one might suppose that the pharmacologist would be able to pro-

vide us with some exact statement of relationship between chemical structure and hypnotic activity. Such, however, is not the case. For the most part we are left to wonder just why a substance possessing a certain formula should have the physiological effect it does. This much, however, does seem to be clear. The bromine ion, the ethyl radical [C_2H_5] and the urea grouping [$CO(NH_2)_2$] to judge by the frequency of their appearance in this group of substances play some role in depressing the activity of the nervous system. The precise degree of solubility in the lipoidal substances of which much of the nervous system is constituted is also a determining factor. On the other hand there are drugs of definite sedative power whose activity cannot be explained by either their solubility preferences or their chemical structures. Concerning these entities the chemists simply say at the present time that the pharmacologic action is presumably a "whole molecule" action. Beyond these elementary admittedly unsatisfactory statements it is not safe for the non-chemist to go at the present time.

Though most practitioners doubtless have their own conception of what an ideal sedative-hypnotic should be, it would probably not be amiss to enumerate the characteristics which are generally regarded as essential in a clinically satisfactory hypnotic. Briefly, such a drug must be sufficiently rapidly absorbed to act within a reasonable period of time, and it must be sufficiently rapidly destroyed or excreted to prevent its continued action over unduly long periods of time. It must be free of dangerous or unpleasant side actions. It must not be habit forming, and finally, the margin of safety between the therapeutic and the toxic and the minimum lethal dose must be sufficiently great to render serious accidental overdosage practically impossible.

The bromides are, strictly speaking, sedatives rather than hypnotics. They block motor excitement. They have an anaphrodisiac effect and, by their general quieting influence, induce rather than compel sleep. They tend to be slowly eliminated, only about 25% of the amount ingested being excreted in the first twenty-four hours, and total excretion often requiring ten to twenty days. Thus,

their cumulative effect must be thought of when they are prescribed, though this factor is to some extent offset by the relatively large doses which can safely be taken. The clinical efficiency of the bromides can be increased by simultaneously feeding the patient a salt-poor diet due to the fact that the bromide ion will then replace the chlorine ion in the tissues more rapidly and thus favor a quicker bromide tissue saturation.

In the alcohol group of sedatives, ethyl alcohol itself in its various forms has a sharply limited field of usefulness, owing largely to its well known side actions, its habit-forming quality, and the consequent wide spread strong social prejudice against its use in any form. The only other important members of this group are paraldehyde and chloral hydrate. Paraldehyde, though an excellent hypnotic from many points of view, has fallen into disuse in many quarters because of its irritant effect on the stomach and also because, being partly excreted through the lungs, it imparts an offensive odor to the breath. Chloral hydrate owes its loss of popularity to its depressing effect on the pulse rate and blood pressure, its action as a gastric irritant, and its slight though definite tendency toward habit formation. In spite of these qualities, however, it remains a drug which will probably always be widely used in small dosage and combined with other sedatives, notably the bromides, because of the rapidity and certainty of its action-factors which are often of great practical importance in emergency situations.

Sulphonal and trional, chronologically the first important substitutes for chloral, are relatively simple chemical entities. In the case of sulphonal we have four carbon atoms, two of which are bound to ethyl sulphone radicals and two to methyl radicals; trional is identical in structure except that one of the methyl groups of sulphonal is replaced by an ethyl group. These substances are mild in action, non irritating and free from deleterious side actions including the so-called "hang over" effect and would constitute almost ideal hypnotics were it not for the fact that they are slowly absorbed and even more slowly excreted. Thus their continued administration is very likely to result in an accumulative effect

which demands that their administration be interrupted by frequent periods during which some other hypnotic must be substituted.

Considering next the barbiturates, we come to a group which comprises so great a number of individual preparations that it is impossible to consider each of them separately. Developed for the most part within the past decade, they are a group of urea derivatives in which various sedative groupings have been introduced into the urea molecule in an effort to produce maximum hypnotic and minimum toxic effects. The chemical formulae of some of the more widely used barbiturates may be of interest and are as follows: barbital (Bayer's Veronal), ethyl ethyl barbituric acid; phenobarbital (U. S. P.), phenyl ethyl barbituric acid; alurate (Roche), allyl isopropyl barbituric acid; dial (Ciba), allyl-allyl barbituric acid; amytal (Lilly), isoamyl ethyl barbituric acid; ipral (Squibb), isopropyl ethyl barbituric acid; and many others. This brief list, however, serves to illustrate the manner in which chemists have attempted to synthesize something approximating an ideal hypnotic by creating a varied group of modifications of barbituric acid, which is itself malonyl urea.

As the above formulae would lead one to believe, the various members of this group do possess individual characteristics which give them certain clinical advantages one over the other in different practical situations. This phase of the subject will be briefly touched upon later. In general, it may be said that their most important differences are speed of action, intensity of action, and margin of safety. With reference to margin of safety, all of them which are now widely used possess an adequate margin when used within dosage limits as indicated in the commercial literature which is packaged with them.

Lastly there are the narcotic hypnotics. Pantopon, an injectable whole opium preparation, is claimed to be preferable to morphine because of its lesser tendency to produce vomiting and constipation, as well as because of a less depressing action on the respiratory center. Like morphine, however, it is definitely a habit-forming and demoralizing drug and is therefore to be deliberately avoided except in extreme situations calling for the relief of un-

bearable pain, or in its well-known role as a pre-operative sedative. Morphine itself is too well known to require comment. Hyoscine hydrobromide is a valuable drug because of the fact that it can be given hypodermically, because of its prompt action, and because of the certainty with which it decreases the motor activity of the assaultive and destructive patient. Its chief danger lies in the fact that, in elderly and arteriosclerotic patients it is not unlikely to produce sudden and serious collapse, occasionally requiring energetic measures to avoid a fatal termination.

In everyday use on the wards this group of drugs has come to have certain well recognized usages.

In epilepsy, the bromides and phenobarbital are regularly given to reduce, or if possible, to prevent altogether the occurrence of convulsive seizures. In status epilepticus, phenobarbital sodium given intravenously to effect is usually successful.

In excited hysterical states, bromides in fairly generous dosages may prove adequate. If not, they may be replaced by one of the milder acting barbiturates such as sedormid (a simple urea derivate not previously mentioned, whose chemical name is allyl isopropyl acetyl carbamide).

Excited manias, or catatonic praecoexes, react favorably to one of the stronger barbiturates, such as amytal. Occasionally, when the patient is extremely disturbed, the intravenous injection of the soluble sodium amytal at intervals for the deliberate purpose of keeping the patient under the influence of the drug for prolonged periods ranging from twenty-four to seventy-two hours is attended by very satisfactory therapeutic results. Obviously when such a procedure is undertaken attention must be given to the evacuation of the patient's colon and bladder. The writer has seen this same technique prove the turning point toward recovery in a severe case of involution melancholia characterized by a profound agitated depression. The free administration of fluids, either by Murphy drip or hypodermoclysis, is an important adjuvant to the prolonged sedation in the involution cases.

In the stuporous inaccessible states of catatonic dementia praecox, intravenous injection

of sodium amytal in dosage of 3½ to 7 grains has been noted to produce an almost dramatic change in the patient's reaction. In relatively undeteriorated cases, lucid intervals approaching the normal often result. Unfortunately, as the drug wears off the patient returns to his previous catatonic state, so that the chief value of the drug is to render temporarily accessible a patient about whose mental processes we might otherwise have remained entirely ignorant.

For the patient suffering from insomnia, evipal or seconal, because of the relative promptness of the onset of their action are very useful. In the more severe grades of insomnia, however, where the patient requires a more prolonged action to prevent his awakening after an hour or two, it may be necessary to combine these quick acting members of the series with some having a more prolonged effect, such as sodium amytal or phenobarbital.

In conditions of sleeplessness due, in part at least, to pain, the combination of one of the barbiturates with some substance such as amidopyrine, phenacetin or aspirin usually proves more effective than the administration of the hypnotic alone.

Seniles as a group must be treated with the milder sedatives, and heavy dosage of any drug generally avoided, due to their usually feeble state. Morphine in particular is contraindicated, and here, more frequently than among the younger patients, shows the excitatory reaction which it is occasionally known to produce. Hyoscine is particularly likely to produce serious collapse. In general the use of bromides, or the mild acting sedormid is advisable with the aged. In those patients tending to show night wandering and daytime drowsiness, all sedatives should be administered between 4 and 10 p. m. in the hope of re-establishing to some extent the normal sleep rhythm.

For early senile cases, as well as the neurotics, sedobrol (Roche) which is a beef tea bromide preparation, makes a gratefully received mild but effective sedative drink when given on retiring.

Recently, hyoscine or stramonium, in combination with small but gradually increasing doses (¼ to 1 tablet q. A. M.) is being em-

ployed to control the tremor of postencephalitic Parkinsonism, with some promise of success.

In conclusion, it may be repeated that the ideal sedative does not exist. Habituation, the development of tolerance, a tendency to cumulative effects, and the depression of the vital functions characterize all of them in greater or lesser degree. Useful though they are, indeed almost indispensable in many cases, they are properly only to be looked upon as temporary measures to be resorted to until nature and a more constructive therapy can be brought into play. When their long continued usage appears inevitable, it is usually good policy to change from one drug to another from time to time; and it is always good policy to terminate their use altogether as early as practicable.

THE HOMICIDAL INSANE

M. ZIMBLER, M. D.*

Every psychotic patient who displays assaultive tendencies is a potential killer. A patient may have paranoid delusions and, for self protection, may try to get rid of imaginary enemies and persecutors. As we see in dementia praecox, paranoid condition, and other psychotic states patients under the influence of hallucinations may act impulsively and do harm without any intention. The same may happen in clouded epileptic states or in hysterical twilight states. In a properly organized and supervised mental hospital it seldom occurs that patients with such tendencies have a chance to harm anybody because measures of precaution and protection are taken. The patients are watched and supervised carefully and if necessary secluded, according to their condition, permanently or temporarily. They are prevented from getting hold of a dangerous weapon. While in the hospital they receive special treatment which their mental condition requires or symptomatic therapy such as hydrotherapy, narcotherapy.

The following five histories of homicidal patients serve as example. All of these patients displayed psychotic symptoms a long time before they committed a homicidal act. Some of them had frictions with law and were kept on probation for awhile. Others were considered strange and queer by people who

came in contact with them, but due to ignorance and carelessness they were not submitted to psychological study or kept under psychiatric observation. After having carried out their criminal deeds they were treated as criminals and sentenced accordingly. These people actually did not realize what was right and wrong, their minds were distorted by delusions or hallucinations. One cannot expect that these people will understand why they were held in prison. The only proper treatment is a mental hospital which is apt to modify their behavior. Sometimes they are kept in prison for years, and only when their mental symptoms are recognized they are transferred to a mental hospital and often it will be too late for an effective treatment by that time.

The histories of our cases are taken from the records of the Delaware State Hospital.

Case 1—D. M. (Col.). A farmer, was committed January 14, 1922, at the age of 38. He was brought from the penitentiary for observation. Patient shot and wounded two of his brother's children. One of the children died later. He actually attempted to kill his brother. Patient declared that his brother tried to poison his pigs and to damage his property. The family history shows that one of his uncles was an inmate of the Delaware State Hospital on three occasions, with a diagnosis of recurrent mania. Another one of his relatives is at the present time an inmate of the Delaware State Hospital, with a diagnosis of dementia praecox. Patient did not show any abnormal trends during his childhood. He had an elementary education and reached the 5th grade at school, at the age of 17. He was not a school problem. He became a sober and industrious farmer. He was a likeable man, but stubborn and had a very determined disposition. In all his actions he thought he was right. He never had any trouble with court. In 1917 patient submitted himself to an operation for removal of a bullet which had been in his skeleton since the age of 5. Soon after this operation patient was confined to bed with pneumonia. He was very seriously ill and displayed psychotic symptoms, was apprehensive, and frequently cried.

A definite change of personality was noticeable after he recovered from pneumonia. He became more seclusive, depressed, avoided any

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contact with people, and spent most of the time in his room, reading the Bible. He expressed the idea that people were after him. He resumed work as a farm hand in Middletown, but his mental condition gradually grew worse, and he soon had to return. While on his way home he was very hallucinated, he lost his baggage on the train and arrived home in a very excited and apprehensive state. At that time he feared that poison was put in his food, and he quarrelled with his brother; however, he never displayed any violent acts until one night when left with two of his nieces he suddenly, without any warning, started to shoot and killed one of his nieces and wounded the other one. At the same time he set fire to another farmer's barn.

After his admission to our Hospital he showed definite antisocial tendencies, he was rather unfriendly, sullen, resentful, contrary, suspicious and reticent. He did not appear to realize the seriousness of his crime. On several occasions he plainly stated that he was framed. "I have not done anything to be locked up here. There is something wrong with the laws of the state. They claim that they have laws to punish a certain class of people and that the other class of people do as they please." The case was diagnosed as paranoid. At present he is adjusted to the ward life, is very industrious, but he does not participate in social affairs; he even refuses to go for walks.

Case 2—This boy was admitted for observation November 2, 1932, at the request of Attorney-General. On November 5, 1932, at the age of 12, he shot and killed his father. Both of his parents were known as alcoholics. Patient's home environment was regarded as very poor. There was a constant friction between the parents. They frequently changed their residence. Since infancy patient was very delicate, and he was seriously ill with cholera infantum at the age of 2. Shortly after, he had nervous fits. At the age of 4, he had a prolapse of the rectum, and he suffered from enuresis until the age of 11. At the age of 6, he entered school, but never progressed further than the second grade. He was unable to learn to read or to write because he had a reading disability and is left handed. For these reasons he was very slow at work and was always difficult to handle. In the

classes he appeared nervous, restless, would often get up and move around the room without permission. He frequently played truant, associated with youngsters known as bad boys, and had a habit of threatening the younger children; he frequently treated them cruelly. He finally was relegated from school temporarily; he reentered in 1932. It is interesting to note that he underwent a psychometric test Jan. 8, 1932, and his I. Q. was 71, and he was considered to be of dull normal intelligence.

Patient was committed to the Hospital after he committed the crime on November 5, 1932. On that morning his father and mother had been drinking heavily. Patient did not clean the stables as he had usually done; instead, he went with his dogs into the woods. When he returned from his walk his father threatened to beat him. The boy got hold of a gun and shot his father in the back. This patient has been diagnosed as epidemic encephalitis on the basis of the results of his neurological examination. He remains rather asocial and unreliable. He defies authority. He promises to behave correctly, but soon breaks these promises. Because of assaultive and destructive tendencies he has to be secluded or restrained frequently. He does not accept advice and has spheres of irritability. At times he realizes that he loses control over himself, but he thinks he is normal mentally. On Oct. 8, 1936, while working outdoors, he escaped and two days later he was picked up and returned by the police.

Case 3—D. F. was committed June 9, 1931, at the age of 37. He was a tailor by occupation. Patient killed his brother-in-law, and was transferred from the New Castle Workhouse. The family history shows that patient's father was always considered queer. Patient immigrated with his parents when 17 years of age. He worked in a barber shop until he was drafted in the Army and sent overseas, where he worked as a company tailor. On his return he opened a tailor shop in Wilmington. He was considered queer and strange by his neighbors, because he often talked to himself or imitated gumming with a broom. Many people were afraid to enter his shop. Court record: In 1921 he served three months in the Workhouse for carrying concealed weapons; he was arrested March 4, 1927 for dis-

orderly conduct, and paroled for a period of nine months. He was said to have followed school girls on the street.

Patient accused his brother-in-law of having mistreated his sister, who actually died from pneumonia, according to the necropsy report. Patient declared that his sister died from an injury which she sustained when her husband hit her in the face. Patient is diagnosed as a paranoid condition case. He appears nervous, fidgety and trembling; he talks a broken and barely intelligible dialect. His frequent letters addressed to court officials contain unintelligible complaints. He appears sociable and friendly in his demeanor.

Case 4—N. T. This colored man, born in 1913, was admitted Jan. 5, 1937. His occupation was farm work. On June 30, 1935 he killed another colored man in a fight, while drunk, by stabbing the man to death with a pen knife. He was sentenced to two years in Kent County Jail. His term expired Oct. 27, 1937. Patient went to the 8th grade in school. He always was attached to his mother and sister, appeared rather shy, oversensitive, quick tempered. Until 1929, he usually preferred to stay home and did not like to mingle much with other people; he did not have any love affairs. In 1929 he showed some change in his behavior, when he frequently participated in social drinking and associated with people of ill repute. His parents disapproved of this, and he became involved in quarrels with his parents over this. On one occasion he even tried to kill his father. On April 15, 1933 he was arrested for carrying deadly weapons. He pleaded guilty and was paroled for one year. It was never found necessary to submit him for psychiatric examination. This patient was diagnosed as a dementia praecox, paranoid type. He is very grandiose and bizarre in his delusions. He contends that he has been put in the hospital by the government to try out how much electricity he can stand and this makes him a soldier. He claims that he is supposed to get a monthly salary from the government. He shows definite paranoid reactions, states that different people want to kill him, that his parents are against him. Even in restraint he has assaultive and violent outbursts, requiring sedative drugs. He shows a very stolid ex-

pression. He varies in his behavior—one day he is friendly and reserved, the next day morose, noisy and out of control.

Case 5—W. O. was admitted June 9, 1937, at the age of 41, following conviction of the murder of a man on Feb. 5, 1932. He was also wanted for murder in the states of Virginia and New Jersey. Born in South Carolina, he did not attend school for a long time, and cannot write well. He always worked as a farm laborer. He was drafted for the Army in 1917, one year after his marriage. When he was discharged from the Army in 1919 he returned to his wife and he found that she had been having an affair with another man. He killed the man, and escaped the authorities. From 1926 to 1930 he worked on a railroad, and not much is known of his life during that period. He travelled around in many states. He killed a woman with whom he had a love affair, claiming that she cheated him. Thereafter he lived in Delaware, and in February 7, 1937, he was arrested for killing a colored man in Wilmington in May, 1932. Patient manifested psychotic symptoms, and became depressed, fearful, excited. He declared that the prisoners were against him, that they wanted to kill him, that the doctor had robbed him. He appeared hallucinated, expressed reference ideas. Because of his condition he was transferred to the Delaware State Hospital. In 1931 his psychometric showed him to have an I. Q. of 43, and he was classified as a high grade imbecile. He still displays paranoid delusions, and is diagnosed as paranoid case in a mentally deficient individual.

All of these cases presented manifest psychotic symptoms previous to their homicidal acts. If they had been submitted for observation to a mental hospital at the proper time much trouble would possibly have been prevented. The first of these patients were mentally ill for five years, and the members of his family knew about his condition, but did not look for psychiatric advice. The second patient is from a tainted family, a delinquent child suffering from a definite organic brain disease. The third patient displayed psychotic symptoms for years before he committed a murder, but he was never referred for a psychiatric test. The fourth patient's diagnosis was made in jail as he served a two year

sentence. The fifth case committed three murders in different states, and lived in Delaware for years without being identified. Finally, after he committed his last crime, he was arrested. At the time of his arrest a psychometric test was performed, the results giving evidence of mental deficiency; however, he was held responsible, and sentenced for life. After remaining in the Workhouse for several years he openly manifested psychotic symptoms of paranoid nature, which at present time appear to be recognized.

We may call our patients criminally insane who actively are psychotics, whose minds are disorganized because of their sickness. Their behavior is just a manifestation of their disease, and naturally they should be treated in mental hospitals.

INSULIN SHOCK THERAPY: A CASE SHOWING UNUSUAL FEATURES

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The case reported here is one treated by Sakel's hypoglycemic shock method which is noteworthy for the large number of seldom-seen phenomena presented during treatment, as well as for the serious psychic problem which remains after treatment has been concluded.

This patient is a white woman, 38 years old when the treatment was applied, and who had presented signs of a beginning psychosis approximately nine years before. She had been hospitalized continuously since December, 1930. Her father and one brother are said to have been alcoholic. Little information was ever obtained about her very early life; we do know that she had syphilis in 1919 (at the age of 19); this was apparently treated adequately, and blood and spinal tests have since been consistently negative. She went to high school and business college, then worked as a stenographer, bookkeeper, and governess until her marriage at 28. The husband stated that she had been "nervous" ever since he had known her. The patient's own statements, made after mental symptoms began, indicate that she led an irregular sexual life after the age of ten.

The first mental symptoms appeared about a year after her marriage. It is said that

soon after the death of a brother, at about this time, she began to complain of physical symptoms, became confused, and though unnaturally quiet if left alone, would impulsively attack anyone who urged her to any activity. She spent a short time in a private hospital in Philadelphia, where she was reported depressed, agitated, and worried about the possibility of syphilis. She went home for a short time but soon returned in an agitated and self-accusatory state; she attempted to choke herself, became confused and untidy, masturbated, assaulted others, and refused food. She was transferred to the Delaware State Hospital in 1931 and has been hospitalized ever since.

When admitted she was resistive and violent, kept her eyes tightly closed, and would not accept food. She was usually quiet when left alone, but would violently attack anyone who entered her room. She was untidy and constantly tore off her clothes and remained nude. Records indicate that except for a few almost momentary periods of communicativeness several years ago she has remained in a similar condition until 1938, when insulin therapy was started. The diagnosis made after prolonged consideration was catatonic dementia praecox.

The writer saw her first early in 1936. She was still secluded in a private room; ate fairly well as a rule, but was untidy and combative. She lay in bed nude, with a sheet completely covering her most of the time, but if disturbed in any way, or even spontaneously at times, would walk about her room nude, and talk constantly and loudly, in a deep, unnatural voice. The writer never heard her normal voice until insulin was started. Her talk was jumbled and formless, always obscene in the extreme. She was so combative that any care whatever required the presence of several attendants. Once during 1936 sodium amytal was given intravenously, but no effect other than a sedative one was obtained.

Late in January 1938 she was assigned a private room and a special nurse on the women's receiving ward. She apparently liked her nurse, and was behaving a little better before insulin was begun. It became possible to keep her dressed a part of the time, by keeping her out of her room. She still had

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many days, however, when she would become extremely noisy and obscene, and would go into her room, tear all her clothing off and go to bed. Her talk was usually monosyllabic and her attitude morose and sullen. Though there was a little improvement attributable to the change of environment, it was slight and inconsistent, until the time insulin therapy was started.

Insulin treatment was begun February 14, 1938, approximately nine years after the onset of the psychosis. She received 38 treatments, and completed the course April 8. She showed a typical coma only twelve times, and had eleven epileptiform convulsions. During the treatment, several interesting observations were made. The dosage was started at twenty units, and the first coma occurred on the tenth day of treatment, with ninety units of insulin. Up to and including this day she showed no improvement. The next day a peculiar phenomenon occurred, one which we have not seen reported elsewhere. At 6:45 a. m., a few minutes less than 24 hours after the injection, she had a genuine epileptiform seizure, lasting five minutes. The previous day she had eaten considerable fruit, and had eaten a definitely adequate amount at the evening meal; but as will be seen later, a mild hypoglycemia had probably occurred nevertheless. As she recovered quickly and took a large breakfast, she was kept in bed but given no other treatment. She refused her lunch, and almost at once was noted to become weak and drowsy, indicating in all probability a recurring hypoglycemia, 29 hours after the insulin injection. Before any treatment could be given, she had another convulsion lasting three minutes, with marked cyanosis. Forty cubic centimeters of 33 per cent. glucose was given intravenously at once. At 1:35 P. M. there was another very severe attack, beginning in the legs and spreading to the entire body; and at 1:40 P. M. another occurred. Adrenalin had already been given, and she now received forty cubic centimeters of glucose again. As the three seizures had been severe, it was decided to proceed at once with the treatment previously worked out for such cases, and she was therefore given five grains of sodium luminal intravenously; no further epileptiform seizures were seen. After recovery

from this complication she showed the first signs of mental improvement. She dressed herself, read the paper, and was quiet and cooperative. She began to ask questions about how she came to be in a hospital, and seemed depressed, and still rather unstable.

Treatment was resumed March 2, with reduced dosage, and on March 8 she had one convulsion and on March 9 had two. Both days the attacks occurred in a pre-comatose state and ceased promptly after glucose. She was quiet and cooperative both days after waking. The next few days she spoke more about her past life and about her husband. It was realized from her questions that she had a complete amnesia for the period of her hospitalization; she insisted it was 1932 and believed she was still in the hospital in Philadelphia. The magnitude of the psychiatric problem of rehabilitation thus became apparent. On March 14 and 16, two more convulsions occurred; she continued somewhat improved, though she persistently doubted explanations given her in an effort to aid her orientation. She argued at length over why her letters from relatives should have three cents postage, as she was certain that only two cents was required for a letter. On March 17 she had three convulsions during hypoglycemia, not controlled by glucose; after the third one five grains of phenobarbital sodium was again given intravenously and the seizures ended. Tube feeding was also done, and she awoke in a pleasant mood in the afternoon. It was noted that a focal or Jacksonian epilepsy of the left leg was present; a little phenobarbital was given by mouth, the epilepsy showed no tendency to spread, and faded out in eighteen hours. Her attitude toward this complication was one of amusement.

Treatment was resumed but March 22 she went into a typical coma. That afternoon she became noisy, tore up her clothing, and went to bed nude, though she had seemed to show improvement until the time this coma was produced, and no psychological cause for her regression was ascertained. The next day, when in an appropriate pre-comatose state, she was deliberately stimulated and another convulsion produced; in the afternoon she was again quiet, ate her meals and remained dressed. The following day sudden tempo-

rary weakness in the left leg was noted occasionally, but soon disappeared. She then had three comas, with little mental change. March 28 and 30 she again had convulsions, and both days was a little more active and accessible in the afternoon than usual. She then had six further comas and showed steadily less myoclonic irritability; it was never possible to produce a convulsion again. The mental condition also became gradually a little less favorable, and at the end of treatment, April 8, she had never regained the same degree of improvement which she had shown about March 10, when she was having convulsions almost daily.

Comparison of the mental state before and after the course of treatment did, however, show considerable improvement. Though still grossly psychotic and unstable, she was keeping her clothing on, was quiet enough to be taken outside for recreation daily, was showing an entirely new interest in her appearance, and was often, though not uniformly, accessible in conversation. She was still puzzled over her loss of six years, and was concerned and sometimes irritable about previous belongings which she missed. A strong degree of independence combined with some suspiciousness made the task of explanation more difficult.

After the conclusion of the treatment, she was transferred to a more attractive ward, and continued to have a private nurse and close psychiatric supervision. In the opinion of the physician and nurses caring for her since then, she has shown very little further change. She only occasionally grows rather excitable and noisy, and has been obscene only once. She varies considerably in mood, being pleasant at times, and at other times very sarcastic and disagreeable. Two or three times she has remained in bed, but has not removed her clothing. She believes that she must work to pay her way and performs many tasks willingly. She takes some pride in a task and resents having anyone take over any of her work. Ideas of unworthiness are expressed; she constantly states that she should care for others instead of being cared for. When interviewed recently, she expressed some resentment over the insulin treatment, but talked in a quiet way and without excitement

or marked irritability. She was still unable to accept the facts of her orientation; she did not believe she was in Delaware, and insisted that regardless of the year she had been married only two years. She does, however, remember isolated fragments of her ward existence before the insulin treatment. Once, when her wedding ring was given to her, she expressed the idea that the nurse had been wearing it "all these years." She is roughly correct about the time since insulin treatment was stopped. No answers denoting insight could be obtained; she insisted the physician should know more about her condition than she did; and she was defensive about being in the hospital, remarked repeatedly that the state hospital was where they kept crazy people. Her emotional attitude was well controlled at this interview, though she showed some antagonism toward the physician because of her treatment.

An environmental change to which she has never been able to adjust herself concerns the change in her husband's residence and economic status. When the psychosis began he was employed at a very modest salary, and in the intervening years he has moved to a Midwestern state and receives a much larger salary. Her inability to accept this as fact makes her refuse to accept also the statement that he pays for her care, and she insists therefore that she has become a charity patient. When the husband visited her recently she recognized him, but expressed uncertainty about the many things he told her. The change into an entirely new environment by the husband represents a still further difficulty to which the patient would have to adjust herself.

COMMENT

The interesting features in this case fall into two groups: first, the unusual reactions connected with the treatment itself; and second, the final outcome of the case and the factors which may be brought to bear in determining it.

One of the outstanding complications occurring early in treatment was the epileptiform seizure occurring almost 24 hours after insulin injection, and the evident hypoglycemia and ensuing seizures occurring after 29 hours. The time interval was greater in this

case than any we have seen reported. The seizures themselves are probably due to a slight hypoglycemia continued over a long period; this was evidenced here by the drowsiness and weakness preceding some of these. Sakel (1) holds this view, stating, "Accumulated epileptic seizures occur apparently only after a protracted sugar hunger of the tissues." The use of barbiturates to halt the progress of repeated seizures followed its successful use in another case previously reported by the writer (2) and arrived at by many other workers.

The question of whether repeated seizures cause brain damage of importance is beyond the scope of this paper. Weil, Liebert, and Heilbrunn (3) found that in rabbits only doses of insulin far larger per kilogram than those used in this treatment caused any damage. Various autopsy reports are becoming available; these, however, though indicating a possibility of connection between seizures and brain damage, are not conclusive.

The therapeutic effect of seizures in the treatment seems to be a variable phenomenon. Sakel (4) now states that he has noted the value of convulsions in some cases from the first. Isabel Wilson (5) mentions two cases, one of which she observed personally, in which sudden lucidity appeared after a convulsion. Von Braunnmuhl (6) states that ". . . in the majority of cases, they have shown impressive therapeutic effect." In our own case there was from day to day a striking concomitance between the mental state and the occurrence of seizures. From the time when the patient became more recalcitrant in this respect and showed no further tendency to epileptic phenomena, all mental improvement ceased. Von Braunnmuhl, in the discussion cited above, notes this tendency of some patients to show less and less epileptic phenomena as treatment progresses. Because of the definite relationship between seizures and improvement in this case, the use of metrazol is an interesting possibility for the future, if conditions warrant. The divergence of opinions concerning the seizures is interesting. Holmes (7) for instance, was unable to see any beneficial effects in fifteen cases observed.

Another question at present unanswerable is presented by the patients who, like the pres-

ent one, show a definite but unsatisfactory state of improvement at one stage of the therapy, and who definitely grow worse with further treatment. Unfortunately, though such cases are fairly common, the criteria for determining the optimal time to suspend treatment are little understood.

The consideration of the ultimate outcome of this case is also an interesting one. Three possible courses may be taken by the patient: she may improve to the point of making parole possible; she may make a ward adjustment at a much more satisfactory level than before; or she may relapse to approximately her former state. Adjustment outside the hospital will be peculiarly difficult in this case because of the amnesia for a period of six years, and even more so because of the husband's having moved, physically and financially, into a quite different environment in the intervening time. The process of filling in her memory of the missing years is a difficult one, and attended by many possibilities for disaster. Undoubtedly the long duration of her psychotic retreat from her difficulties will predispose her, almost as a long continued habit, to relapse again into the same state. Apparently the two most definitely indicated psychotherapeutic lines of endeavor are first, the gaining of rapport and attempting gradually to lead her to accepting her correct orientation, with whatever insight it may entail; and the use of her psychic assets—for example, her desire to work and her pride in her work—to make at least a compromise solution and a ward adjustment possible, if more ambitious plans are not successful. Even if the net gain is only the transformation of an unruly, violent and chronically antisocial patient into a relatively comfortable, quiet and more or less productive individual, our therapeutic efforts will have been of considerable value.

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SILENT EPIDURAL TUBERCULOUS ABSCESS

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This case is reported because of the rarity of the pathological process and its failure to cause symptoms during life.

Case: E. B., white, female of 65 years, was admitted to Delaware State Hospital, January 8, 1920. There was a history of mental deficiency dating from infancy. She was cared for by members of the family until her admission to the Hospital at the age of 47 years. Her stay at the hospital was comparatively uneventful. She was always poorly nourished despite a healthy appetite. In 1928 an x-ray of the skull showed normal structure. In 1932 her lungs were shown negative by x-ray. In December, 1936 she sustained an impacted fracture of the neck of the right femur. The position was good, and subsequently she moved about the ward by pushing a chair in front of her. Her urinalysis showed various amounts of albumin present in nine of thirteen examinations. Until her terminal illness her blood count was normal. Her blood pressure showed varying degrees of elevation throughout the years, and a reading of 232/134 was recently recorded. The blood Wassermann and Kahn were negative. In June, 1936 there occurred a convulsive episode followed by rigidity of the right upper extremity, which was diagnosed as cerebral softening. Death occurred April 19, 1938, after a short illness.

Autopsy showed extensive pneumonia involving the greater portion of the right lung and about one-third of the left lung. Dense fibrous pleural adhesions were present at the right base and diaphragmatic surface. The heart was not enlarged. The entire abdominal cavity was obliterated by dense, fibrous adhesions. Adhesions also involved the entire liver surface. A small gall bladder contained a solitary stone. The kidneys were of normal size, but somewhat pale and scarred, and microscopically presented the picture of early primary contraction. The appendix was not identified.

The skull, which presented normal external appearance, showed in the right parietal-tem-

poral region an epidural abscess measuring 7 x 7.5 cm. in area and 1.5 cm. at the point of greatest thickness. The borders sloped to a thin edge. This epidural abscess was filled with exudate which varied from thick yellow fluid to fibrous in character. The fibrous portions were moderately adherent to both dura and bone, but the cerebral aspect of the dura showed normal glistening structure. The right cerebral hemisphere showed a depression corresponding to the position of the abscess. Aside from the associated vascular congestion and two small porencephalic areas in the left caudate nucleus and putamen the brain structure was not remarkable. The brain weighed 1180 grams.

Microscopic examination of the epidural abscess showed central caseation, with very numerous typical tubercles present along the periphery. On the osseous aspect the process caused moderate bone erosion of the inner table. In none of the organs was evidence of tuberculosis present. However, pneumonic consolidation was too extensive to permit identification of old tubercular foci by palpation of the gross specimen. There was nothing about the peritoneal, perihepatic, or pleural adhesions suggestive of a tubercular process. There was no evidence of syphilis. The absence of symptoms in the presence of this lesion is best explained by its slow development, which permitted the brain to adapt itself to pressure changes.

THE PRACTICE OF DENTISTRY IN A MENTAL HOSPITAL

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AND

WILLIAM H. MASON, D. D. S.*

Farnhurst, Del.

In a mental hospital the general practice of dentistry is fundamentally the same as it is in any other hospital or private practice; but the actual handling and care of the patient is somewhat altered. The normal, intelligent person can take care of his teeth. He has a regular daily mouth hygiene, and he visits his dentist at least twice a year. The mentally ill person is in most cases unaware of any abnormal condition of his mouth or teeth,

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and because of this he needs more attention than the normal person.

To illustrate how the dental department in the mental hospital carries on its work, let us take the case of Mr. John Doe. During the first day of Mr. Doe's confinement in the hospital, he was examined by the dentist and a record was made of any dental work which needed attention. This record shows the conditions existing within the mouth, such as, missing teeth, teeth which have been previously filled, and those which need to be filled or extracted; the condition of the gums and surrounding tissues, also the readings of the radiograms of the teeth and the bony structures of the mouth.

Mr. Doe's record was something like this: four remaining infected teeth in the maxilla; six remaining teeth in the mandible, the bicuspids and molars were apparently missing; but from the reading of the radiograms the two lower third molars were impacted. In the six remaining lower teeth, two have been previously filled, and three need to be filled. The gums presented the appearance of Vincent's infection, which was confirmed by the laboratory report of the smear of the gingiva crevice.

In all cases where Vincent's infection is found in the mouths of the patients, the patients are immediately placed on isolation, and treated until the infection subsides.

Shortly after Mr. Doe's examination he was called to the Dental Surgery. Here his teeth were cleaned and filled, and his gums were treated. After his gums were in a healthy state, the four upper infected teeth were extracted under local anaesthesia, and the two lower impacted third molars were removed under general anaesthesia. These infected and impacted teeth were not extracted because of the theory of Dr. Cotton, "that infected teeth are the cause of insanity;" and they were removed so that the patient would be in a better physical condition to help overcome his mental illness.

After Mr. Doe's mental condition improved, procedures were taken to restore his missing teeth. His mouth and gums were sufficiently healed by this time so that impressions could be taken from his upper and lower gums. Later, his mouth was placed in full masticatory facilities with a full upper and a partial lower denture.

During the confinement of the patients in the hospital, the nurse of their ward, under the supervision of the dental hygienist, attends to the cleaning of their mouths and teeth after each meal. A monthly examination is made of each patient with artificial dentures for adjustment and the possibility of need for repair. The natural teeth of the patients are examined and cleaned at least four times a year. Any restorative work needed is done wherever found.

By frequent examination, cleaning, and restorative work the mouth and teeth of the patient are kept in as nearly normal condition as circumstances permit.

Basal Anesthesia

Encouraged by Gwathmey's results, Alfred E. Jones, Chicago (*Journal A. M. A.*, April 30, 1938), states that rectal evipal anesthesia was given a thorough trial at the Michael Reese Hospital. As a result, he reports 518 cases in which, during the last twelve months, evipal soluble was used rectally, principally as a preliminary anesthetic to provide basal anesthesia before administration of ether, ethylene or local anesthesia. These 518 cases fall roughly into four groups: (1) kidney, ureter and bladder conditions, 203; (2) general surgical, orthopedic and gynecologic, 176; (3) in children, for excretion urography, removal of stitches, drains and the like, 136, and (4) renal and ureteral colic, three cases. The results have been most gratifying. In practically every case the patient fell into a quiet, restful sleep within five to ten minutes from the time the injection was given. There was complete relaxation, with deep rhythmic breathing and good cardiac action. The blood pressure dropped slightly in most cases, but not more than a few millimeters. As a terminal or supplementary anesthetic ether or thylene was used in the majority of cases. The circulatory and respiratory changes following rectal administration of evipal soluble were practically nil compared with those following other preanesthetic drugs. In eleven cases (2.1 per cent) there has been marked confusion or delirium on waking. Most of these occurred early in the series, and they can properly be attributed to an idiosyncrasy to barbiturates which some patients manifest.

EDITORIAL

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PSYCHIATRIC RESEARCH

During the last five to ten years, psychiatry has seen some revolutionary changes. Insulin and metrazol treatment for dementia praecox, lobotomies for depressed cases, particularly of the agitated type, inductotherm for various organic conditions, endocrine therapy for all conditions considered functional, due probably to the equally rapid strides which are occurring in endocrinology. The physical treatment for mental diseases is now uppermost and according to reports are to a certain extent successful. As with all new treatments reports are variable. Abnormalities in endocrine secretion show changes in blood chemistry. Research is needed to determine what is happening to the physiology

of the mentally disturbed patient. It is hoped that detailed chemical analysis of the blood will eventually rationalize treatment and that the pathological recognition of mental diseases will be as readily understood as those of other diseases with which we are familiar. The State Hospitals are the logical places for such research, since it is in these institutions that sufficient material is available for adequate study. It is essential that the laboratories of these institutions be equipped to carry on the most detailed physiological chemical work. Psychiatry at present is seeing a further ray of hope. The treatments used may seem drastic in many cases, but remissions are occurring. There is a certain amount of danger, but the same is true of a surgical operation. At times the psychiatrist may feel that he is working blindly, but he must be fearless and optimistic. From being a step-child of medicine, he has now found himself forced to be familiar with the essentials of most specialties, as well as with body chemistry. He is fortunate if he has at his command a well equipped laboratory, for he can then help to clear much of the mystery surrounding psychiatry. He has before him a vast country to be explored.

Psychoanalysis was the last upheaval in psychiatry, but it was only for the maladjusted—not the true psychotic, the most pitiable of all people. There has been some success in the physiological approach. We must be optimistic at the present, but the psychiatrist must keep on a level track studying his results from a psychiatric, psychological, physical and chemical viewpoint.

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SCHOOL TEST PATTERNS OF CLINIC CHILDREN

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Psychological studies of children are rarely complete without school tests. These determine the extent to which a child has mastered the subjects taught in school. School tests are also known as achievement tests. The most commonly used achievement tests are those concerned with measuring progress in the tool subjects—reading, spelling, and arithmetic. During the first few years of their schooling children learn several new techniques of ideational exchange. These primary tools constitute the basis for advanced studies of the upper grades and for effective vocational and social intercommunication in adult life. The sooner the foundations for further cultural and intellectual growth are laid, the more helpful they are in later life.

Despite the activity programs now prevalent in progressive schools, the three R's remain the central theme of the primary grades. In recent years a distinct tendency to stress the essentials has become manifest, for it is obvious that most meaningful and socially profitable activities presuppose a good mastery of the three R's. If a child does not learn to read during the first four years of school, he is likely to go through life without fully mastering a subject through which most of our general knowledge is acquired.

Intelligence tests form the major part of any psychological study. If it were possible to make accurate predictions concerning school progress from the I. Q., school achievement tests would be superfluous. None of the three R's correlate highly with intelligence. It is therefore imperative that an intelligence examination be supplemented by achievement tests. A series of school achievement scores may yield valuable information concerning the child's total personality, since all essential qualities of behavior are simultaneously reflected in all undertakings, accomplishments, and interests.

In problem children the development of primary school functions is rarely uniform. The type and degree of the test variability reveals not only how much a child has learned in the various subjects, but may furnish valuable clues as to the type of mentality represented by the child. It may even determine the treatment to be undertaken. A sixth grade child with third grade achievement in reading and sixth grade achievement in arithmetic is liable to present totally different problems than a sixth grade child with sixth grade achievement in reading and third grade achievement in arithmetic.

School tests may also yield information about the effectiveness of teaching methods and about the presence and absence of proper home training.

The results of our study will be presented in patterns. A test pattern is the relationship of two or more test scores derived from the same child. It discloses the following facts:

1. the child's standing in the school subjects in comparison with other children,
2. the relationship of one subject to the other in the same child,
3. the degree of retardation or acceleration with respect to grade placement,
4. the extent to which a child works up to the level of his mental capacity.

Two illustrations from clinic records will make clear the meaning and value of achievement patterns.

J. F. is a 15 year old white boy with a long juvenile court record. Truancy and stealing are recurrent offenses. He has low average intelligence. He has reached the 7th grade in school. His actual achievement is as follows:

arithmetic—end of 4th grade
reading —middle of 2nd grade
spelling —middle of 1st grade

N. K. is in the 8th grade at the age of 13. The clinic is to determine whether she has sufficient ability to cope with the academic curriculum of senior high school. She is found to be of distinctly superior intelligence, but her school achievement is:

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- arithmetic—middle of 5th grade
- spelling —middle of 8th grade
- reading —beginning of 10th grade

Three test scores may arrange themselves into six different patterns. In the list of six patterns below the first one represents the most successful subject, the second is intermediate, and the last is the least successful.

- Arithmetic—Reading—Spelling (ARS)
- Arithmetic—Spelling—Reading (ASR)
- Reading—Spelling—Arithmetic (RSA)
- Spelling—Reading—Arithmetic (SRA)
- Reading—Arithmetic—Spelling (RAS)
- Spelling—Arithmetic—Reading (SAR)

As reading and spelling are psychologically related functions they may be combined for purposes of reducing the six patterns to three: arithmetic higher than either reading and spelling, arithmetic lower than either reading and spelling, arithmetic in an intermediate position.

The subjects of our study are 348 children of school age examined at the Delaware Mental Hygiene Clinic between May 1st and December 31st, 1937. All these children were given a comprehensive battery of intelligence tests and most of them were also given achievement tests. Their ages range from 6½ to 17½. There are 251 boys and 97 girls in the group. They were referred to the clinic by the following agencies:

- Juvenile court 49 per cent
- Public Schools 20 " "
- Social agencies 18 " "
- Industrial schools ... 8 " "
- Physicians 5 " "

Of the whole group of 348 children, 224 were given all three achievement tests. The remainder (124) were examined only in reading and arithmetic. This latter group yields only two patterns: arithmetic higher than reading (AR), and arithmetic lower than reading (RA). What is the incidence of the various patterns among our clinic children? Which school subject is the most successful?

The test patterns of the 224 children who

were tested in reading, spelling, and arithmetic are as follows:

- ARS and ASR..147 cases 65.6%
- RSA and SRA.. 32 cases 14.3%
- RAS and SAR.. 39 cases 17.4%

Forty-nine per cent of the whole group had the ARS pattern. Among the 124 children who were tested only in reading and arithmetic 73 per cent received higher ratings in arithmetic than in reading and only 22 per cent received higher scores in reading than in arithmetic.

The majority of clinic children are distinctly number-minded. The test patterns do not disclose the degree of discrepancies between the test results. One way of determining the extent of the differences is to calculate a pattern quotient. An arithmetic-reading pattern quotient is obtained by dividing the reading grade by the arithmetic grade. (X 100) A quotient below 100 means that reading is lower than arithmetic and a quotient above 100 means that arithmetic is lower than reading. Table I shows the distribution of pattern quotients in our group.

Table I. Reading-Arithmetic Pattern Quotients of 348 Clinic Children

Reading Grade	Per Cent
Arithmetic Grade	No.
30 to 69.....	128..... 37
70 to 89.....	86..... 25
90 to 109.....	74..... 21
110 to 129.....	36..... 10
130 and above	24..... 7

It follows from the data listed in Table I that 37 per cent of all children are seriously retarded in reading in comparison with their standing in arithmetic. Twenty-five per cent may be said to be moderately retarded in reading; twenty-one per cent are practically even in both subjects; ten per cent are moderately retarded in arithmetic and seven per cent show a serious number handicap. The spelling-arithmetic quotients would, in most instances, be even lower than the reading-arithmetic quotients.

Significant sex differences are found to occur in the distribution of achievement pat-

terns. It seems that girls are responsible for most unusual and irregular patterns. Table II shows that girls are more successful in spelling than are boys, and that they are less successful in arithmetic than are boys.

Table II. Position of Spelling and Arithmetic Achievement of Girls in the Pattern Groups

Pattern Groups	Per Cent
Spelling highest	44
Spelling intermediate	37
Spelling lowest	21
Arithmetic highest	22
Arithmetic intermediate	36
Arithmetic lowest	44

The reading-arithmetic quotient is a convenient index for showing up the enormity of the problem of reading disabilities in clinical diagnosis. But it does not always reveal the full truth. Children with reading disabilities may also be seriously retarded in arithmetic. In such cases, the quotient may be high and reading disability may still be present. Success in arithmetic is to some extent influenced by reading disability. Many children of the primary grades fail to progress normally in both subjects because of the common interference factor. Some schools do not promote their children until their achievement in reading is commensurate with grade placement. This in itself prevents many children from advancing in arithmetic as fast as they are capable of. A 12 year old child, of average intelligence, may be in the 4th grade because of reading disability. His achievement in arithmetic may not be higher than 4th grade, although potentially he is able to do 7th grade work.

The extent to which children work up to the level of their capacities is measured by the accomplishment quotient. This is obtained by dividing the reading or arithmetic age by the child's mental age. Since three or more mental age ratings were derived for our children, the highest value was used as approximating the child's true capacity. The method of the highest mental age correlates best with life's criteria. Assuming

that an accomplishment quotient of 85 and above indicates adequate use of one's abilities, we find that 53 per cent of our children reach that level in arithmetic and only 32 per cent in reading.

Table III. Average Accomplishment Quotients In Reading and Arithmetic According to Intelligence Groups.

Intelligence Classification	Number	Accomplishment Quotients in	
		Reading	Arithmetic
Moron	33	86.6	96.4
Borderline	57	83.6	93
Dull Normal ...	79	83	88.8
Average	128	77	83.4
Bright	43	73.8	74
Superior	8	66	70

Three facts stand out as we inspect the data of Table III.

- (1) The average reading quotient of each group is lower than its corresponding arithmetic quotient. This is another way of saying that most clinic children are less successful in reading than in arithmetic.
- (2) The more intelligent the child is, the greater the discrepancy between actual achievement and latent ability. The moron cannot catch up with others; the average and superior child cannot catch up with himself.
- (3) The discrepancy between reading and arithmetic is statistically smaller in the more intelligent child. The reason for this may be the fact that the intelligent child continues his school training for a longer period and therefore is more likely to overcome the reading disability.

Arithmetic, as a school subject, has a decided advantage over the language functions in the first grade. Its scholastic and social importance gradually decreases as we grow older. The average adult rarely uses higher than fourth grade number operations in daily life. But his reading interests are liable to raise his performance in that function to the 7th grade level. As the non-reader grows older, the differences between school subjects are obscured by these changes in emphasis and social need. Older children show many more mixed patterns than do young children. This is partly shown in Table IV.

Table IV. School Test Patterns and
Children's Ages

Age	ARS and ASR	RSA and SRA	RAS and SAR	AR	RA
7 to 9	13.6%	6.3%	2.6%	23.1%	0%
10 to 11	25.2	28.1	12.8	23.1	14.8
12 to 13	21.7	21.9	28.2	25.2	18.5
14 to 15	27.9	28.1	30.8	19.8	40.7
16 to 17	11.6	15.6	25.6	8.8	26

Between the ages of 17 and 21, adolescents with reading disabilities begin to show an increased interest in reading. When this happens, additional "intellectual growth" results and the verbal abilities improve significantly.

The non-reader is not only a left-minded, but above all a manual-minded person. He thinks in terms of object situations. The majority of children of the ARS and ASR group have high performance quotients. Their verbal functions, as measured by the Stanford Binet or by the Vocabulary Test are mediocre or defective. Their psychometric pattern is: Performance-Stanford-Vocabulary.

This pattern is diametrically opposed to the one found in most patients suffering from psychoses, neuroses, and psychopathic personalities. The psychotic, as a group, are very inferior in arithmetical calculations; the majority of our clinic cases excel in arithmetic. Arithmetic and performance tests measure attentional control, effectiveness of concentration, practical adaptability, relevance of judgments, orderliness of thought processes, and contact with reality. Most of the children studied are adequate in precisely these traits. This does not mean, however, that their social adjustments are normal. It may mean that the cause for their maladjustment must be looked for in the environment. Their symptoms must be interpreted as normal responses to an abnormal environment at home, in school, or at work.

About ten per cent of our children are feebleminded. Seventy per cent are potentially normal, but socially maladjusted. Only about twenty per cent belong to the group of inherently unwholesome personalities. Children of the latter group may be expected to respond abnormally even to a normal environment. They do so in the psychological tests.

CHILDREN WHO DRAW

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A pencil or crayon is used by children at an early age. Year old babies will scribble, two year olds will make circular marks in imitation, three year olds will copy a circle. As early as three years the normal child will make spontaneous drawings. These are not always recognizable for what they represent, but the child has definite ideas which he is attempting to express. It is thus apparent that drawing is a non-verbal communication of ideas, a substitute for written or spoken words. Language development in civilization has progressed from primitive drawings left in caves, through symbolic representations of visual entities, to symbolic representation of vocal equivalents or letters. The progress of the child's expression of ideas is somewhat similar. Young children make frequent spontaneous drawings. Many older children have a decided tendency to draw what they see or observe. Not all children, however, do well in drawing. What, then, are the factors which motivate one child to express himself mainly through non-verbal media, whereas another child may only rarely express himself in this manner? One of the dominant factors appears to be a lack of ability in verbal expression, and the study presented here is an endeavor to clarify the various peculiarities of mental make-up which tend to lead the child toward non-verbal presentation of ideas.

That spontaneous drawings of children may furnish much material for study by the psychologist is not a novel idea. Goodenough (2) in her historical survey, mentions that studies of children's drawings were made as early as 1885. Goodenough herself has contributed in great measure to the psychologist's knowledge of children's drawing ability by the standardization of the "man-drawing test." In this test the child is told to make as good a drawing of a man as he can, and the result is scored on the basis of fifty-one units of measurement or details which have been found to correlate with mental growth. The number of units includ-

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ed in a drawing constitute the score for which a mental age equivalent has been worked out. Thus, the drawing of a young child which has perhaps only the head, legs, and body present would achieve three points credit and a mental age rating of three years and nine months.

In the present study the Goodenough drawing test has been used as one test in a battery of not fewer than four. Previous studies (1), (5), (6) have shown the existence of various types of psychometric patterns based upon the relationship between the quotients obtained on the Terman Vocabulary Test, the Stanford-Binet Test, and a Performance Test. The patterns thus obtained may be grouped into six categories, the verbal pattern, and the psychomotor pattern (8), and four types of mixed patterns, which will henceforth be designated as Mixed I (Stanford highest, vocabulary next, and performance lowest); Mixed II (Stanford, performance, vocabulary); Mixed III (vocabulary, performance, Stanford) and Mixed IV (performance, vocabulary, Stanford). The Goodenough drawing of a man test has been used in conjunction with the other tests in an attempt to discover what its clinical use may be with reference to its relationship to the psychometric patterns already known.

The ratings have been divided into groups in accordance with the patterns previously mentioned without reference to the Goodenough test score. The largest group (35% of the cases) belongs in the psychomotor category. Most of these children have been diagnosed as suffering from reading disabilities at present or as having partially

overcome reading disabilities. The table below indicates the average quotient for each of the tests according to pattern groups, as well as the number of cases in each group and the average chronological age.

No. of Cases	Average C. A.	Vocabulary Quotient	Stanford Quotient	Performance Quotient	Goodenough Quotient
25 Psychomotor	10-2	74	78	92	89
10 Verbalists	9-2	75	69	60	64
12 Mixed I	7-9	83	90	78	92
10 Mixed II	9-11	66	70	76	81
7 Mixed III	9-7	93	76	81	79
7 Mixed IV	11-2	81	68	93	79

An analysis of the table shows that the Goodenough is higher than the verbal tests in the psychomotor, Mixed I, and Mixed II groups; lower than the verbal ratings in the verbalist, Mixed III and Mixed IV groups. It is also apparent that the Goodenough drawing test rating approximates most adequately the highest rating in the psychomotor, the Mixed I and Mixed II groups; the lowest rating in the verbalist group and the middle rating in Mixed III and Mixed IV groups.

All the facts above cause some perplexity as to what factors are influential in causing the Goodenough ratings to shift position as they do in accordance with different patterns and mental make-up. In other words, what does the Goodenough test measure? What sort of intelligence and personality factors come into play in the execution of drawing a man? The following table indicates some of the factors of which affect the test ratings on each test:

VOCABULARY	STANFORD	PERFORMANCE	GOODENOUGH
1) Verbal expression	1) Verbal expression		
2) Conceptual level	2) Conceptual level		
	3) Visual memory control	1) Visual memory control	1) Visual memory control
	4) Auditory memory control		
	5) Speed of response	2) Speed of response	
	6) Abstract reasoning		
	7) Ingenuity or planning	3) Ingenuity or planning	2) Ingenuity or planning
3) Verbal comprehension	8) Verbal comprehension	4) Practical reasoning	3) Verbal comprehension
	9) Concrete Comprehension	5) Concrete comprehension	
		6) Lateral orientation	
		7) Observation of detail	4) Observation of detail
		8) Motor coordination	5) Motor coordination

It is apparent that the Goodenough drawing test is influenced by three factors which influence the Binet test, one factor which influences the vocabulary test, and four factors which affect the performance ratings. One would expect then that the Goodenough would approach more nearly level of the performance or of the Stanford than that of the vocabulary test, and the table of averages shows this to be the case.

The peculiarity of the patterns and the position of the Goodenough tests, then, depend on each child's rating on the abilities included in the tests. The results of the psychomotor and verbalists groups illustrate this in a definite manner.

The psychomotor group as a whole is comprised of "children who can not read." By this is meant that their verbal and linguistic achievement is definitely inferior to their native level of endowment because of poor lateral orientation, poor verbal comprehension, and frequently poor auditory or visual memory control. These children usually have excellent practical judgment, observational powers, motor coordination and planning ability. The Goodenough drawing test thus gives them an opportunity to express those abilities in which they are adequate without requiring any powers in which they are inferior.

The verbalist group comprises children who read well for the most part, but are poor in motor coordination, planning, practical judgment, memory, complex reasoning, and observational powers. These children are, however, not handicapped by poor lateral orientation. Consequently, in verbal situations they produce adequate results; except for lateral orientation, performance sub-test items are poorly performed, and in the drawing test they have no opportunity to express their best capacities.

Most of us follow the line of least resistance and the children in the psychomotor group are no exceptions to the rule. During reading class they are entirely at a loss in competition with children who can read adequately. In order to keep busy they amuse themselves by drawing figures with a gun ready to shoot their teacher or the class-

mate who reads better than they do. They make excellent marks in drawing class and usually do comparatively well in arithmetic. A few remarks gleaned from the case records of several such children serve to illustrate this.

Anne, aged six years, was first referred to the clinic because of refusal to attend school. Her test quotients were as follows: Terman vocabulary test, 86; Stanford-Binet test, 100; Cornell-Coxe performance test, 105; and Goodenough drawing test, 111. In the social history her interests are described as follows: "Patient likes to play hopscotch and jump rope. She also spends a considerable amount of time drawing and painting in water colors."

Albert, aged seven years, obtained these quotients on psychometric tests: Terman vocabulary test, 78; Stanford-Binet test, 80; Arthur performance test, 103; and Goodenough drawing test, 100. The social worker lists his interests in this manner: "Albert likes to play soldiers, 'injuns' and cowboys. Loves to tear things up, but is not interested in putting them back together. Fond of drawing, looking at picture books, and listening to the radio."

Paul, aged twelve, has a vocabulary quotient of 71, a Stanford quotient of 82, a Cornell-Coxe performance quotient of 114, and a Goodenough drawing quotient of 83. A note on his school progress is as follows: "Patient was promoted in September. His marks for the term were A in effort and art, B in conduct, penmanship, music, hygiene and physical education, C in reading, spelling, language, civics and nature study."

Although the cases quoted above are all clinic patients, the findings are not peculiar to the clinic group. The following excerpt from a recent magazine article (7) describes a child who shows many of the symptoms of the non-reader but is notable mainly because his writing is upside-down and backward. "Frank has an average I. Q., is a B student, is rated 'excellent' in drawing, is two terms ahead of average pupils in spelling (although inversionists as a rule are bad spellers)."

Thus far only the two straightforward, easily diagnosed pattern groups have been

discussed. What about the mixed patterns, those where there are indications that the child suffers from both inadequacy of verbal expression and some loss of mental control and, who in consequence, never produces results in concrete or verbal situations which are entirely commensurate with mental capacity? If one reconsiders the table of averages, it is readily noted that Mixed patterns I and II (highest test Stanford-Binet) is composed of children who make comparatively high scores on the Goodenough drawing test. Further than that it is to be noted that the averages of the Mixed II group are not in accordance with the pattern they represent, even though each member of the group shows that pattern individually. Actually the averages follow the pattern of the psychomotor group. These peculiar results are readily accounted for by the fact that although psychometric patterns are mixed, the patterns in those cases where achievement test ratings have been obtained show the majority of cases to be marked reading disabilities.

In Mixed patterns III and IV (Stanford rating lowest) it is noted that the Goodenough drawing test averages are comparatively low with reference to the other test ratings. These children apparently suffer more from poor mental control and disorganized thinking than from linguistic handicaps, and it is interesting in this connection to note that two cases are personality problems of long duration, and one has recently been admitted to the Delaware State Hospital.

There are, of course, exceptions in each group, whether the psychometric pattern is of psychomotor type, verbalist type or mixed. There is one outstanding fact, however. In every case where reading ability is poor, drawing ratings are higher than verbal ratings, whether the child's psychometric pattern is of psychomotor, verbalist, or mixed type.

Throughout this study drawing has been considered a non-verbal expression of ideas and therefore largely dependent upon the child's native intelligence. There is no question that some of us have always looked

upon drawing as a special ability rather than one depending upon development of general ability. This problem can not be settled without further investigation, since among the ranks of psychologists disagreement on this point is marked.

Hollingworth (4) states, "There have been various attempts to analyze into its elements the ability to draw. It is agreed the ability is complex, but it can not be so easily taken apart as can musical ability. Like general intelligence, it is distributed among children in various degrees, most having a moderate or "normal amount." The superior degrees constitute talent. Modern life calls for all forms of talent in drawing in combination with various degrees in intelligence. . . .

"It is thought that talent in drawing probably manifests itself typically at an early age. However, until methods of measuring and identifying this talent shall have been developed, we can not discuss its manifestations in childhood, as would be desirable for the better education of children."

Goodenough (3) in contrast to this, propounds the following: "Up to the age of about ten years, the factor chiefly determining the quality of a child's drawing is his intellectual development. After the age of ten, the importance of the intellectual fact gradually lessens and drawing takes on the character of a specialized ability rather than a general means of expression."

How far then is the Goodenough drawing test useful as a clinical tool? Its great advantage, of course, is its simplicity, its short time requirement; the foregoing discussion also indicates its use in emergency as a substitute for a more complex performance scale, particularly in the case of preschool children who are unable to handle the blocks and materials of more advanced tests. Further, in combination with the vocabulary alone, the Goodenough drawing test may indicate whether the child suffers a language handicap or mental disorganization.

Whether or not a formal test of drawing ability is administered, drawings of school children should be of great value to the teacher, psychologist or psychiatrist, since

children who read but lack mental control do not, in most cases, draw, but children who can not read, draw.

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LATERALITY AS A CLINICAL PROBLEM

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During the past seventy-five years neurologists, physiologists, psychologists, and educators have shown increasing interest in the problem of sidedness of behavior, mainly because this factor is alleged to have a determining effect on individual and social adjustment. This claim seems acceptable at face value. In our decidedly right-sided civilization, those who habitually prefer their left side are exposed to many conflicts. Some investigators believe that strong laterality conflicts are responsible for the onset of a neurosis. S. T. Orton and his students make out a convincing case for the position that most children's difficulties in reading, writing, spelling and speech are attributable to a sidedness problem. Vocational teachers and counsellors frequently have adjustment problems with sinistrals. It is not necessary to elaborate further that laterality is truly an important factor in human development and adjustment.

In clinical psychology, problems of laterality crop up at practically every turn. A teacher would like to know whether John's inclination to use his left hand should be curbed. A principal asks why is it that most of his non-readers have left-handed preferences. A school boy reports that his mother tied his left hand to his side to prevent him from using it. A parent noted that her son never stuttered until he was forced to write with his right hand. An adult is reluctant

to admit that he is left-handed because he is ashamed of it.

What should be the psychologists's point of view in attempting to cope with such problems as these? It seems that the answer ought to depend on our knowledge of the nature of laterality and on justified theoretical assumptions. Let us briefly review some crucial phases of laterality to gain an orientation of the field.

First, what is the nature of laterality distribution in a normal population? Opinions on the question are diverse. Some psychologists believe that laterality distribution is bimodal. That is to say, there is a small concentration of left-handed individuals at one end of the handedness scale and a large concentration of right-siders at the other end, with a small transitional group of ambidextrous in between. Some adhere to the popular conception of distribution which holds that all individuals have a definite native preference. In this case, the majority are definitely right-handed while the minority are divided between a small group of definitely ambidextrous and a slightly larger group of definitely left-handed. Both views are essentially the same, except that the former admits degrees of sidedness. Both agree that approximately 80% of the general population is right-handed, 15% is left-handed and 5% is ambidextrous. Still others believe that 2 to 12% of the human race is left-handed; the rest are dextrous.

We subscribe to a thesis which posits that laterality is distributed according to the normal distribution curve when the incidence of extreme right-sidedness is plotted on one side of the X axis and the incidence of extreme left-sidedness on the other, with all possible variations in between. The ambidextrous (actually the mild right and left siders) are concentrated around the central tendency. In terms of percentages this means that 50% of the population is right-handed, and 50% is left-handed. This concept of laterality distribution may seem unusual, but there is a considerable amount of substantiating material to support it. The other theories mentioned evolve from evidence derived from old line testing tech-

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niques; ours eventuates from a new trend in laterality measurements. The others are concerned with laterality distribution as manifested in overt activity; ours deals with central or potential laterality distribution.

How is laterality measured, and what is meant by old and new line measuring techniques? Handedness has been and still is being ascertained by a large variety of isolated acts. Most studies of hand preferences have employed such unimanual devices as tapping, strength of grip, use of scissors, throwing and catching a ball, writing, picking up objects, spinning a top, and the like; and such bimanual tests as sweeping the floor, batting a ball, and holding a spade. These are illustrations of old line testing devices. It will be noted that some of these performances require speed, some require accuracy, some strength, and some a manner of grip. It therefore follows that all are tapping a kind of sidedness (peripheral) that is extremely susceptible to training and other environmental influences. Recent studies have shown that there is such a thing as central laterality which is often different from peripheral or manifest sidedness. Central or potential laterality is the result of a structural-organizational nerve patterning, while peripheral laterality is the end product of neuromuscular conditioning. Central laterality either facilitates or inhibits peripheral development and functioning. For example, a person may be born with a natural or central preference for his left side. Due to the strong social and physical forces of a right-sided civilization, he soon learns that he will be happier if he relinquishes his latent lateral propensities and develops his less dominant side. Thus, to all outward appearances, he becomes a right-sider. This adjustment, however, does not eradicate his central left dominance, for the keen observer notes persistent evidences of it in this individual's everyday activities.

C. Van Riper, of Iowa University, has devised two experimental instruments which aim to measure central laterality. Both are the same in principle; one determines whether a person is right or left-handed, while the other, a revision of the first, measures both

preference and degree of preference. The device places the subject in a laterality conflict and then forces him to make an unconscious choice. He believes that he is following instructions, but actually he is allowing his dominant hand to lead his non-dominant one, since both are in simultaneous parallel motion. Many subjects who are convinced that they are dextrous because they do practically every important act with their right hand, make mild or marked left preference ratings on the apparatus. J. Jastak, of the Delaware State Hospital, adopted Van Riper's contrivance for clinical use in the form of a specialized type of writing board called the ambigraph. The ambigraph, together with two tests of visual dominance, and eight well selected criterion performances, such as throwing a ball, dealing cards and writing, constitute his laterality battery. All items are weighted and scored, and the total numerical rating has a corresponding percentile and laterality classification based on a distribution continuum. When groups are measured on these instruments, laterality is distributed according to a crude form of the normal distribution curve.

Is laterality innate or acquired? Present knowledge of laterality does not permit a definite answer to this question. It will be fruitful, however, to examine the main arguments on both sides of the question and then offer our own point of view.

Those who are of the opinion that handedness is acquired state their case somewhat like this: "Babies are naturally ambidextrous and training brings out the preference." Or like this: "The easy and frequent opportunities for the young to observe the hand movements of their parents indicate the handedness is imitated. Evidence for the social heritage view is found in the insistence with which parents change over children who begin by using their left hand. . . . It is probably a matter of chance, at first, which hand an infant begins to use most of his own accord. But there is relatively little opportunity, in the nature of the case, for him to continue using one hand as much as the other." We agree that the social environment is a powerful influence

in determining peripheral sidedness for a large number of individuals but certainly not for all. This theory cannot account for the phenomenon of a markedly left-handed child in the home of markedly right-handed parents and siblings. Besides, the use of a given side does not necessarily mean that that side is the dominant one.

Those who believe that laterality is inherited are divided on how the inheritance mechanism operates. Some maintain that it is inherited according to the Mendelian law; some say that it is just inherited; and some say it "runs in families." All base their belief on genetic studies of the occurrence of handedness in families, and on the relative proportions of left and right-handedness in the general population. All use the same evidence and all arrive at different conclusions.

We believe that the tendency to be right or left-handed is inherited, but not according to the Mendelian law. The activity we observe and term laterality is certainly not a unitary trait; it is the dynamic resultant of an organic pattern that has been structured during development. The nature of the various segments which compose the configuration is determined by the structure of the genes present in the zygote. Although identical segments always unite in normal development, the total pattern differs in each instance. The character of the structure and functional whole are determined, not upon the presence of certain parts, but upon the character and organization of these parts which are determined to a large degree by chance. Laterality is a differentiation from an organic whole. A neonate first reaches with his whole body, then with his hands and feet, then with his hands, and finally with a hand. The last step is determined by predisposing influences, which might be overruled by environmental forces if they are not sufficiently potent.

This type of heredity explanation does not imply a contradiction to the brain dominance theory held by Dearborn, Downey, Wile, Orton, Travis and others. It confirms it. It maintains that approximately half the population is born with a right dominant

brain hemisphere. The degree of dominance in each group is distributed over a wide range. For practical purposes, the middle group consisting of the mild right dominance and the mild left dominance are considered ambidextrous. It can be seen that this position is intimately linked with our point of view on distribution.

Our position then, may be briefly summarized as follows: laterality is distributed in the general population according to a continuum which takes the form of a normal distribution curve. It is also a dichotomy, for half the population has varying degrees of right-sidedness and half has varying degrees of left-sidedness. In the terms of percentages we approximate 16% of the population to be markedly right-handed, 34% to be mild right-handed, 34% to be mildly left-handed and 16% to be markedly left-handed. The structure responsible for the type and degree of laterality is inherited according to chance rather than the Mendelian law. These tenets agree well with the brain dominance theory, and even assume it.

Our orientation leads us to a healthy point of view in regard to the whole problem of laterality. Sinistrality is not a mark of inferiority; it is not a stigmata of degeneracy; it is not a structural deformity. Left-handedness is as natural a phenomenon as right-handedness. Manifest sinistrals appear unusual because they are in the minority and they stand out by their "peculiar" ways of adjusting to everyday situations. They may look freakish but they are not freaks, for we understand a freak to be an irregular or abnormal product of some process of nature. It leads us to think of sinistrals as unfortunate individuals who have the double burden of adjusting to regular life developments and to special situations created by the conflict between their propensities and the dictates of a right-handed civilization. We become sympathetic, and hence we attempt to understand rather than condemn sinistrals in their struggles to master concrete and symbolic tasks that are directly dependent on lateral preferences. We refer to the added problems in learning to read, write, spell and even speak. Since these in-

dividuals are not suffering from any special disability, it leads us to recommend that they be given added attention, and specialized remedial instructions so that they may be more effectual in carrying the double load imposed upon them by society.

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THE COMPLAINT FACTOR IN CHILD GUIDANCE

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The complaint, age, sex, intelligence, emotions and experience all operate in the individualization of children seen in clinic service. No one factor is sufficient to explain a child's behavior. Each supplements and completes the other in representation of the total child in the environment in which he is living. Evaluation of the complaint factor is often difficult and should be given serious consideration. Parents, teachers, and others become concerned or exasperated by a child's behavior and give expression to their feelings in what may be termed a complaint. These complaints do not always represent actual variations from normal behavior, but those making the complaints consider them so. Therefore a complaint is indicative of some maladjustment either in the child or in the persons immediately concerned. Through complaints we become aware of conditions that may need correction.

Everyone appreciates the futility and danger of treating merely one symptom of a physical ailment rather than the ailment itself, or of treating a person for one ailment without consideration of his health as a whole. Though not so generally recognized, this practice is just as futile and dangerous in the treatment of personality or behavior disorders. Many parents, teachers, and others in contact with maladjusted children

lack either time or perspective to make a liberal study to discover the child's real problems and the essential bases for their maladjustment. The recognition of symptoms of maladjustment is very important, however, for when these are recognized by a person who is concerned about them the maladjusted individual can be directed to someone who is able to diagnose and treat his basic problem. Particularly persons in contact with children should learn to recognize symptoms of early maladjustment so that the child can be assisted with his difficulties before they become serious. People are usually disturbed by the overactive, over-aggressive, or annoying child and try to do something about his problems, but the very quiet, dependent, or withdrawn child is often overlooked or even commended for his behavior.

Children are brought to the attention of child guidance clinics through complaints stated as reasons for referral. Since complaints from a single source frequently emphasize only one symptom or one phase of a condition, the approach to a problem presented in the reason for referral may be misleading. The complaint is a valuable starting point for study, however. It is helpful to gather complaints from as many sources as possible, such as from parents, teachers, physicians, the patient himself, and others who are in contact with him. As different persons observe and are concerned about different elements of adjustment and maladjustment, a more complete picture of the person's adjustment to various types of persons and environments can thus be secured. Through careful study of the complaints much can be learned not only regarding the patient but also much concerning the persons who form a part of his environment and who may play an important part in his adjustment.

Great care must be taken to guard against thinking of and treating the child as a piece of machinery, to be taken apart bit by bit, examined, repaired, and reassembled. It is difficult to avoid this in an agency working under pressure of a heavy case load. Some orderly procedure must be employed in col-

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lecting information regarding the child and his problems, but if the person making the study loses sight of the living individual, in his zeal for collecting stoek descriptions of such things as his heredity, constitution, environment, traits, and reactions, the child may be seriously damaged rather than helped by such a survey.

Values gained when the total problem is reognized and treated can be illustrated by a study of several children referred to the Mental Hygiene and Child Guidanee Clinic. The complaints for which these children were referred are evaluated for the purpose of demonstrating the ineffectiveness, and sometimes the irrelevancy of the descriptive element in the understanding of human relationships.

Mary, a 13 year old Negress, was referred to the clinic on a charge of incorrigibility made by her mother because she ran away from home. A description of her behavior, given by her mother at the time the complaint was made, gave the impression that the girl might be pre-psychotic. Investigation revealed that Mary does no excessive day dreaming at school, that the mother seems to reject Mary and is anxious for her to be placed in a home for children, that the father prefers an older sister, that Mary has been very unhappy at home, and that she did not actually run away though she had given the appearance of doing so. She had gone to Maryland with a family that had formerly lived near Mary's family. Seemingly, this family visited in the neighborhood and Mary told her troubles to them. They so sympathized with her that upon the father's consent they took her to Maryland with them. She was brought back from Maryland and placed in the Detention Home for Juvenile Court offenders, in order that her problems might be given more complete study. She made a splendid adjustment at the Detention Home and exhibited none of the personality disorders described by her mother. The psychiatrist reached the conclusion that "in view of the social situation, school progress, and clinical findings, including the mental studies, the child finds herself in an unhealthy social situation as a

result of parental rejection, that she is free of inherent personality defects and is essentially adaptable in temperamental qualities."

Dorothy was referred to the clinic at the age of 11, because of retardation in school. At the time of referral the following information was given regarding her. "Her manner is very brusque. She is not emotional. She is very reserved." Dorothy has superior intelligence. Information received from various people in close contact with her indicate that she has extreme difficulty in her relationships with people. "She encloses herself in a shell," said one of her teachers. The clinic staff had difficulty in breaking through this shell to find the person concealed within. After a while it was realized that she felt extremely inferior and that she was suppressing strong emotion. Bases for her difficulties were found to be destructive influences in her early home life and in her relationships with members of her family. Because of her extreme reserve, a long period of treatment was necessary. There has been a noticeable improvement in her relationship with most people and in her feeling of self-confidence, and some improvement in her school work.

Charles, aged six years, was referred for examination for admission to the Colony for the Feeble-minded. He was described as a very retarded child, timid and fearful, very restless, fidgety and inattentive, very much spoiled, jealous of his brother, cruel to animals, and inclined to fight with young children and to destroy their toys.

Careful testing at the clinic revealed the child to have superior intelligence but to have a reading disability. The child's problems were discussed with the school. Since the school was unable to give individual remedial instruction in reading this was given at the clinic. Because of his superior intelligence and his tendency to be cruel to other children it was felt that he might develop better relationships with other children if he were placed with a group slightly older and larger than he. He was therefore transferred to the second grade in school.

After much careful study it was felt that his personality problems were primarily based on a destructive relationship in the family setting. Since the relationship problems of parents and children were deep-seated, quite a number of psychiatric interviews with members of the family were required to develop a better relationship between them. After a year's treatment, his behavior was greatly improved both at home and at school and he was doing at least average work in the third grade at the age of seven years.

John, aged 14 years, was referred to the Juvenile Court on the complaint of his father that he was disobedient, disrespectful, and had a habit of stealing. Before arrangements could be made for him to be seen at the clinic he ran away from home. He secured a few odd jobs and slept in a truck for several nights. He was dirty and unkempt and did not have sufficient food. By the time this was reported to the Juvenile Court, John had disappeared and could not be found for several days. He was finally located and placed in the Detention Home for Juvenile Delinquents. During the two weeks he was there his problems were carefully studied by the clinic staff. This study seemed to indicate that John's behavior was partly on the basis of emotional disturbance over his mother's death two years before and partly on the basis of having to adjust to destructive home influences.

His mother's death was particularly disturbing to him because she had over-protected him and she had died suddenly in her sleep one night while he was sleeping with her. After his mother's death the father neglected him even to the point of leaving him alone in the house without food when he was quite ill. A short time after the mother's death, the father remarried. John was disturbed about having a step-mother in his mother's place, even though the step-mother seemed sympathetic and fairly understanding of the needs of an adolescent boy. The father gave the impression of being anxious to be relieved of the responsibility of caring for him. John wanted to die, he said.

Through a child-placing agency he was

placed in a temporary foster home. During this period members of the clinic staff had frequent interviews with John, and with his father and step-mother. After about two months he returned to his home. He has been happy and well adjusted. Under the schedule of attitude therapy, tendencies to steal, to run away, and to truant from school have completely disappeared.

These are pertinent examples of the value of studying a child's problems from as many angles as possible. It is easy to imagine the possible catastrophes which would have resulted if these children had been dealt with only on the basis of the complaints made at the time of referral. The complaints of Mary's mother and of John's father, if taken at their face value, would probably have led to the commitment to the Industrial School of a non-delinquent girl and boy. Dorothy's abruptness and reserve were only defenses to hide strong emotions which for various reasons she was unable to express. Charles, a child of superior intelligence, was thought to be eligible for admission to the Colony for the Feeble-minded. Complaints, even the most genuine, are colored by the personality and attitudes of those making the complaints. On account of emotional co-determinants, parents and others in constant contact with children may not see subtle personal relationships in true perspective. Complaints are warning signals of conditions that need attention, but they must be carefully evaluated and supplemented by a study of other factors. The children treated in this article were studied by all departments of the clinic staff, psychiatric, psychological, and social service. The work of these departments was correlated so as to give a well rounded understanding of the child and his problems.

PHILADELPHIA PSYCHIATRIC SOCIETY

On Friday, May 13th, 1938, the Philadelphia Psychiatric Society (which includes among its members psychiatrists from the eastern part of Pennsylvania), held their May clinical meeting at the Delaware State Hospital, Farnhurst.

Dinner was served to about one hundred thirty members and guests. After dinner the meeting was opened by Dr. Baldwin L. Keyes, president of the Society. Dr. Lauren H. Smith gave his usual report.

Dr. Bertrand G. Lawrence, First Senior Assistant Physician of the Delaware State Hospital, read a paper on a new method of treatment of agitated depression, prefrontal lobotomy. Dr. Francis C. Grant, of Philadelphia, consulting neuro-surgeon of the Delaware State Hospital, who performed the operation, discussed the paper. Further discussion was carried on by Dr. Seymour DeWitt Ludlum, of Philadelphia, Dr. Walter Freeman, of Washington, D. C., who introduced the procedure in the United States; Dr. J. W. Watts, of Washington, D. C., who was the first neuro-surgeon to perform the operation in the United States; Dr. Edward A. Strecker, of Philadelphia, and Dr. Clarence M. Hincks, of New York. Dr. M. A. Tarumianz demonstrated the three cases that have been operated on in the Delaware State Hospital.

The following two papers were read by title only:

Insulin Shock Therapy, a case showing unusual features, by Dr. J. K. Morrow, Senior Assistant Physician of the State Hospital, and An Unusual Case of Extradural Tuberculous Abscess, by Dr. Frederiek Hemsath, Pathologist of the State Hospital.

After the clinical meeting the members of the society as well as the guests were entertained at Longwood Gardens by Mr. Pierre du Pont.

On May 2nd Dr. M. A. Tarumianz celebrated his twentieth anniversary of his connection with the Delaware State Hospital. He started as Assistant Physician in 1918, was appointed Medical Director in 1925, Superintendent in 1926, and Director of Mental Hygiene and State Psychiatrist in 1929. Prior to his coming to the United States he studied under Dr. Ziehen and Dr. Kraepelin of Germany.

DELAWARE ACADEMY OF MEDICINE

The present series of scientific meetings at the Delaware Academy of Medicine was concluded on May 2, 1938, with a symposium on "Medical and Dental Relationships" in which the following participated:

George M. Anderson, D. D. S., Professor of Orthodontia at the University of Maryland, "Malocclusion of the Teeth;" B. Lucian Brun, D. D. S., a well-known dentist of Baltimore, "The Relation of Dentistry to Medicine;" Sidney R. Miller, M. D., Associate Professor of Medicine at the University of Maryland, "The Relation of Medicine to Dentistry."

Charles R. Jefferis, D. D. S., presided at the meeting, which was largely attended.

WOMAN'S AUXILIARY

Mrs. Augustus Keck of Altoona, national president of the Woman's Auxiliary to the American Medical Society, was guest of the Woman's Auxiliary to the Medical Society of Delaware at a luncheon meeting held on May 11th at the University Club.

In her address Mrs. Keck outlined the program of the national auxiliary and also told of the ways in which it aided and supplemented the work of the medical society. She explained several of the educational projects of the organization.

Mrs. Keck has visited chapters in 33 states during the year and will leave this month for San Francisco, to preside over the national convention, June 7 to 11.

Mrs. Ira Burns presided. The speaker was introduced by Mrs. William B. Odenatt of Philadelphia, program chairman for the eastern division of the auxiliary. She spoke briefly of the bond of friendship gained through the organization by physicians' wives.

Mrs. Robert W. Tomlinson, past president of the Delaware and the national auxiliary, also made a brief address.

Mrs. M. A. Tarumianz presented Miss Frances Palmer who sang vocal solos, accompanied by Mr. Thomas Smith.

Mrs. A. L. Heck was chairman for the luncheon, which was attended by 53 members. Others on the general committee were Mrs. Lawrence J. Jones, Mrs. George C. McElpatrick, and Mrs. Harold A. Tarrant.

The final sewing meeting of the auxiliary for the year was held on May 17 at the home of Mrs. E. R. Mayerberg. The annual luncheon meeting will be in October.

MISCELLANEOUS**Backache**

THAT BACKACHE IS DUE TO:

- A sublaxation—says the chiropractor
 A disharmony of the structures—says the Osteopath
 Your uterus—says the gynecologist
 Your tubes—says another gynecologist
 Your prostate—says the urologist
 Your gout—says the internist
 Your foei of infection—says another internist
 Your prolapsed intervertebral disk—say certain orthopods
 Your piriformis muscle bridging the sciatic nerve—say Yeoman and Freiberg
 Your coccygeus muscle—says Thiele
 Your hypertrophied ligamentum flavum—say some other orthopods
 Your tensor fasciae femoris—says Ober
 Your erector spinae—says Heyman
 Your hemorrhoids—says Jones
 Your episaeral lipomas—says Ries
 Your intervertebral articulations—says Putti
 Your articular faeets—says Ghormley
 Your intervertebral foramina—says Sieard
 Your childhood repression habits—says the psychoanalyst
 Your vertebral foramina—say Danforth and Wilson
 Your sacro-iliae—says Smith-Petersen
 Your lumbo-saeral joint—says Ryerson
 Your radiculitis, ganglionitis, funiculitis or plexitis—says a specialist on itises
 A tumor of the cauda equina—says the neurologist
 Your lumbar punecture—says Pease
 You fell on your coccyx—says the traumatic surgeon
 Your feet need untwisting—says Mahlon Loeke
 Your Schmorl's nodes—says another orthopod
 Your lumbar aponeurosis—says a New Yorker
 Your myofasciitis—says Albee
 Your posterior division of the spinal nerve—says Steindler
 You have no backache — says the Christian Scientist.

—*Jour. A. M. A.*

(Ed. Note—They're all wrong! We have a backache, and a big one—due to heavy taxes.)

Bulls Don't See Red!

Like almost all mammals, they are color blind

I was talking to a farmer in Connecticut beside his pasture fence. A few yards away a magnificent bull was throwing clouds of dust over his back while low, disoriented bellows rumbled in his throat.

“What's the matter with your bull?” I asked.

“He just doesn't like your red shirt.”

“That's not it. Bulls can't tell red from any other color. All mammals except monkeys and man are color blind.”

“What! Now see here, Dr. Andrews, I'll believe about anything you say—but you can't tell me that red doesn't make a bull mad. I've tried it too many times.”

“Nevertheless, I'm right. A psychologist by the name of von Hess experimented with thirty bulls and he proved it conclusively. When a bull fighter used white cloth he got exactly the same results as with red on all of them.

“Moreover, experiments have been carried on with all sorts of mammals. They see shades of gray, but not colors. A cat or dog sees your room very differently from what you do. In the first place, he is looking at it from below, instead of from above. All the angles are different. The whole room is gray.”

“How do they make their tests?”

“In several ways. Most frequently they use two transparent disks of different colors. When they vary the strength of the light behind them so that both disks have the same intensity, none of the dogs, cats or other mammals can distinguish between them.”

“What about these dogs from the Seeing Eye, that guide blind people? They stop for red lights when crossing a street, don't they?”

“Yes, but they probably stop because the traffic and other people stop. When it moves on, they go. It isn't because they can distinguish the color of lights.”

“What about birds and fish and insects? Don't they see color?”

“Yes, of course they do. Insects even see into the ultraviolet and can distinguish colors that are invisible to the human eye. Also, they can make and hear sounds we can't hear. But of all the mammals only monkeys and man can really see color.

"If you come to the American Museum of Natural History we'll show you how a room looks to a dog, how a fisherman looks to a trout and how a barnyard looks to a hen."

(Courtesy of Roy Chapman Andrews and "This Week.")

—*Certified Milk, March, 1938.*

BOOK REVIEWS

Mental Therapy: Studies in Fifty Cases.
By Louis S. London, M. D. Two volumes.
Pp. 774. Cloth. Covici-Friede, 1937. Price,
\$12.50 the set. New York.

These two volumes, which are essentially studies of case histories, may be of interest to the general practitioner as a means of orienting himself in the field of psychoanalysis but they do not equip him to carry on any treatment. To the psychiatrist they seem to add little to the knowledge which is already at hand. However, they are of value in familiarizing the psychiatrist with detailed psychoanalysis. The specialist, however, who is working with a frank psychosis has found psychoanalysis of very little value. The author honestly states that there is truth in this fact and that even psychoanalysis between periods of manic depressive phases does not prevent subsequent attacks. The only value in these cases lies in the ability to understand the abnormal reaction. It is generally considered that in dementia praecox, even of the milder type, such therapy may be dangerous. He is honest in his statements regarding the results of this treatment. He is quite distinctly Freudian in his attitude and both volumes seem to be a defense of the analytical technique. The volumes are well organized and the brief comments and the relative value of analysis in different types of mental disorder show an insight into the adequacy of the treatment. The greatest value, however, seems to lie in the fact that they do give a better understanding of the various abnormalities in human behavior with which all physicians are in contact daily.

Management of the Sick Infant and Child.
By Langley Porter, M. D., Professor of
Medicine, University of California, and

William E. Carter, M. D., Director, University of California Hospital Out-Patient Department. Fifth edition. Pp. 874, with 94 illustrations and three charts. Cloth. Price, \$10.00. St. Louis: C. V. Mosby Company, 1938.

This book should be in the hands of every pediatrician and general practitioner. Part I deals with vomiting, diarrhea, constipation, nutrition, hemorrhage, pain and tenderness, convulsions and syncope, fever, cough and prematurity. Part II deals with diseases of the various systems, behavior, allergy, skin diseases and infectious diseases. Part III is devoted to method, formulas and recipes, drugs and poisoning.

It is printed on a very good quality of paper and is well bound. The illustrations and printing are excellent. It is a very practical book and up to date in all its details. The authors have succeeded in presenting, in this one volume, the essentials of the vast amount of pediatric knowledge available at the present time.

Physicians' Vitamine Reference Book. New York: E. R. Squibb & Sons.

This little handbook helps to define more clearly the various vitamins, the symptoms which may be caused by their deficiency and names the various food products in which they occur as well as the pharmaceutical preparations placed on the market by Squibb. Although far from complete it helps the physician to orientate himself.

Opium Addicts and Addiction. By John A. Hawkins, M. D. Pp. 156. Cloth. Price, \$2.50. Boston: Bruce Humphries, Incorporated, 1937

This is an intensely interesting little book, by an author who has had available a large amount of clinical material, including finally himself—with a cure of the latter. The treatment recommended is thoroughly orthodox. Written more in the style of popular educational works than that of the stereotyped text book, here is a book that physician and laymen alike may read with interest and profit, and with an increased realization of the magnitude of the "dope" problem.

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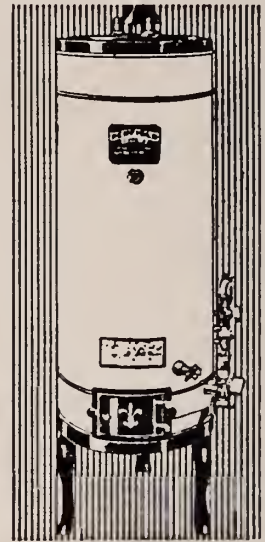
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Mix 1 cup Pablum and 1½ cups meat (diced or ground ham, cooked beef or chicken), add 1 cup milk or water and a beaten egg. Season, form into patties, and fry in fat.

PABLUM MARMALADE WHIP

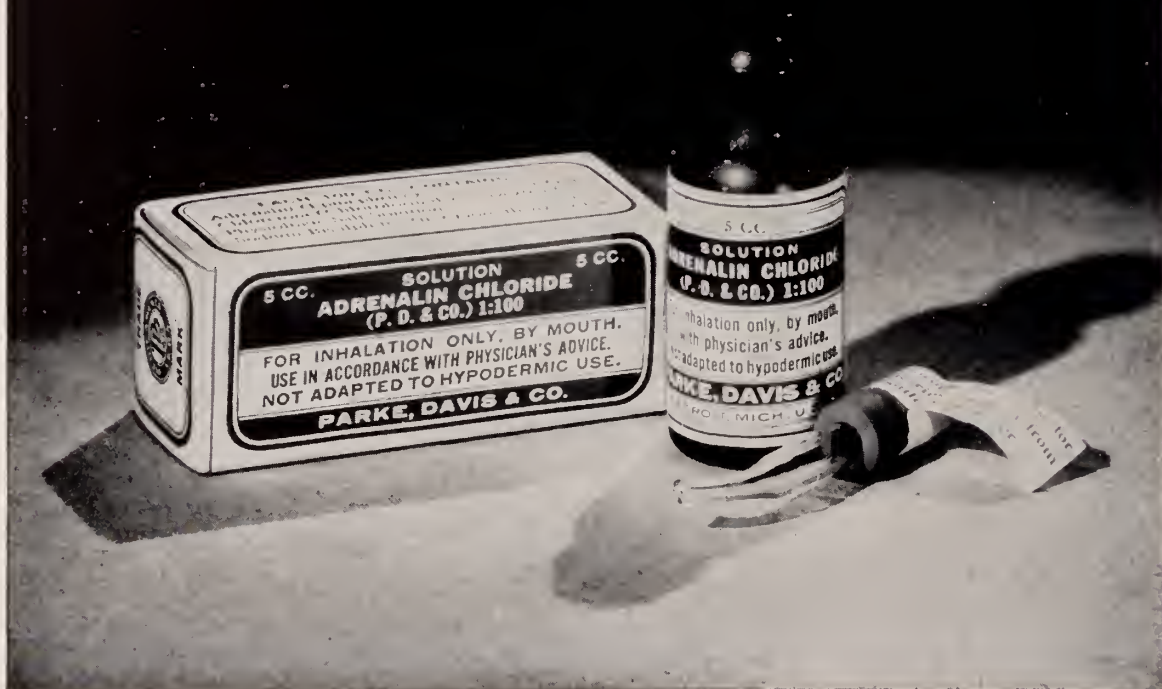
Mix ⅔ cups Pablum, ¼ cup marmalade, and ¼ cup water. Fold in 4 egg whites beaten until stiff and add 3 tablespoons chopped nuts.

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IV. SEALING THE TIN CONTAINER

BRIEFLY, the method of food preservation commonly known as "canning" involves subjecting food in a permanently sealed container to a heat process. The heat process destroys spoilage organisms present on the raw food material; the seal on the container prevents reinfection of the food by such organisms. It is, therefore, obvious that the sealing operation—"closing" or "double-seaming" as it is known in the industry—is one of the most important in the canning procedure.

The manufacture of tinsplate and "sanitary" cans is described elsewhere (1).

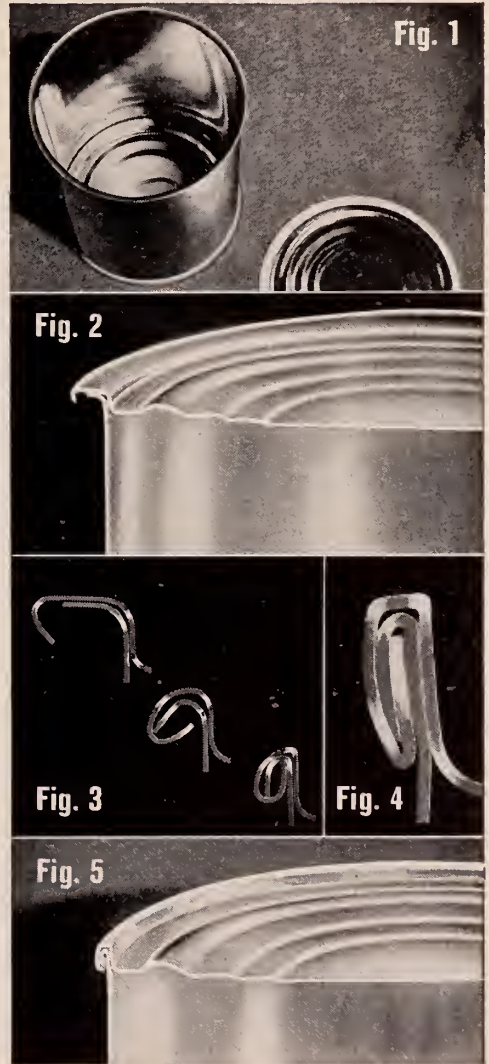
The open cans are received at the cannery in paper cartons or in washed paper-lined box cars, together with the covers which are contained in fiber shipping tubes. Figure 1 shows a can and end ready for use.

In modern canning practice, the cans are first conveyed by automatic runways to can washers, and thence to the filling tables or fillers where the correct amount of properly prepared raw food is put into the cans. The covers or "ends" are placed in the automatic sealing or "closing" machine to which the open can containing the food is mechanically conveyed. In this machine the ends are "double-seamed" onto the can. This operation is portrayed by the accompanying cross-sectional pictures.

In Figure 2 is shown the relation of can to cover before the sealing operation is started; note the relative position of the "curl" on the cover and the "flange" on the can. In this curl, the can manufacturer has placed a gasket or "compound," usually containing rubber. Figure 3 is a series of photographs illustrating the sealing operation in which the curl and flange are first rolled into position and then the layers of metal flattened together to form the final "double-seam" in Figure 4. The rubber compound originally present on the cover supplies the binding material between the layers of metal necessary to insure a permanent or hermetic seal on the container. Figure 5 illustrates in cross-section a closed sanitary can as it comes to the consumer.

In the past twenty-five years great progress has been made in the development of tinsplate, compounds and automatic sealing machines. Collectively, these developments enable present-day canners to impose a permanent seal on the cans containing their products more easily and rapidly than ever before in the history of canning.

(1) The Story of the Tin Can, American Can Company, New York, 1935



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AN EXTENSIVE CASE OF CREEPING ERUPTION FROM THE STATE OF DELAWARE

F. EARLE KUNKEL, M. D.,*
Philadelphia, Pa.

This is the first case of creeping eruption, as far as the writer has been able to ascertain, ever to be reported from the state of Delaware. It is possible that this disease is more prevalent in Delaware than one would imagine, and perhaps is not being recognized. Because the presence of a large number of lesions in a patient with creeping eruption is probably rare in this state, the following case report should be of great interest.

CASE REPORT

G. S., a male 47 years of age and foreman of a gas works' crew, was referred from the southern part of Delaware to the service of eutaneous medicine of the University of Pennsylvania Hospital on August 29th, 1937. The chief complaint was a dermatosis involving the left hip, left thigh, and abdomen. The disease was of 17 days' duration and was accompanied by itching, so intense at times as to be almost unbearable, especially during the night. On August 11th, 1937, he crawled under a house to repair a gas pipe. It was a hot and humid day. Perspiring freely as he lay working on his left side on a damp sandy soil, his clothing became loose and displaced, exposing bare areas of skin about the waist and left arm. A dead dog had been removed from this site about July 15th, 1937. Two or three hours following completion of his work, he complained of itching along his left flank and left arm, and the following morning a blotchy erythema was noticed in these regions. Two days later, small linear and tortuous lesions were observed associated with small erythema-

tous papules and vesicles. Various ointments and lotions were used, but the dermatosis continued to spread. Itching and burning became so intense that the patient obtained only one or two hours' sleep each night and had lost seventeen pounds in weight since the onset of symptoms.



Photograph of the left hip and thigh taken ten days following admission to hospital (creeping eruption of 27 days duration), illustrating the tortuous and serpiginous, slightly raised erythematous burrows and secondary excoriations with remnants of superimposed superficial pyogenic infection.

Cutaneous examination on admission to the hospital showed numerous, erythematous, slightly raised, tortuous and serpiginous, narrow and threadlike burrows disposed over the anterior and external aspects of the upper left thigh, the left hip, lower left abdomen and lat-

*Assistant Professor, Department of Dermatology and Syphilology, School of Medicine, University of Pennsylvania.

eral surfaces of the left arm and forearm. In the majority of the lesions one end was more elevated than the other, while in other instances both ends of the lesion tapered off into fine linear or tortuous erythematous lines. A moderate number of vesicles and erythematous papules varying in size from pin-head to 0.5 cm. were present along these burrows. Superimposed was a secondary impetiginous scratch dermatitis consisting of pustules and mildly inflammatory papules with excoriated tops, some of which were capped by hemorrhagic crusts. Some oozing and superficial, thin, plate-like, easily detached crusts were present as well as numerous linear excoriations and irregular patches of hyperpigmentation. The end of some of the linear and tortuous lesions advanced from about 0.5 cm. to one cm. in each 24 hours during the patient's stay in the hospital.

Laboratory studies at different intervals revealed a continued leucocytosis varying from 14,500 to 19,000 with polymorphonuclears ranging from 58% to 77%, lymphocytes 11% to 16%, mononuclears, 3% to 5% and eosinophiles 23% to 5%. No anemia was present. Several urine examinations were negative. Blood urea nitrogen and blood sugar examinations were normal. Stool examinations for parasites and ova were also negative. One complete lesion was excised for biopsy study. Intensive search in histologic sections by Dr. Herman Beerman* has failed to demonstrate the parasite.

The treatment during the first four days in the hospital was limited entirely to clearing up the secondary pyogenic infection by the use of mild local antiseptic lotions and ointments. Refrigeration of the lesions was performed after the pyogenic element was under control. From four to eight lesions were treated once or twice daily in the following manner: each day all areas were carefully examined and the more active lesions were marked; at the non-elevated or less raised end of each lesion, an area about the size of a twenty-five cent piece, in advance of, but just including the end, was frozen with an ethyl chloride spray for a period of about thirty seconds; on two occasions several resistant lesions were

refrigerated with solid carbon dioxide for five seconds.

Eighteen days following the beginning of refrigeration, ninety percent of all lesions were cured, and itching was no longer present. Ethyl chloride spray treatments were continued at home, and in one week following discharge from the hospital the patient was entirely cured.

DISCUSSION

"Creeping eruption" is an accidentally acquired dermatosis characterized by narrow, linear, tortuous and serpiginous lesions produced by the migration of animal parasites within the skin. It was first described in 1874 by Lee¹, an English physician. He described a peculiar reddish line on the abdomen of a small child. The eruption was first noticed by the mother about three weeks before admission into the hospital. It started as a red line just below the right ankle and gradually traveled up the leg and thigh and on the abdomen, meanwhile fading on the leg. Dickinson, T. Fox and Duckworth² tried, but failed to recover an animal parasite from the tissues. Crocker³ in 1893 saw another case in England, and suspecting an insect larva as the cause, proposed the term *larva migrans*. In 1895, Samson-Himmelstjerne⁴ removed a parasite from a lesion of "creeping eruption" and thought it to be the larva of the horse bot fly, *Gastrophilus*. Sokolow⁵ reported in 1896 on a small worm which migrated in the epidermis of the skin. A parasite removed by Sokolow was identified by Cholodkovsky, an entomologist, as the larva of the horse bot fly. Since these reports, various skin diseases have been diagnosed "creeping eruption." The difficulty arises in the fact that the term "creeping eruption" is not an etiologic entity. In perusing the literature one finds that several different animal parasites may invade and migrate within the skin and cause a "creeping eruption."

The first three cases of this disease described in the United States were by Van Harlingen⁶. Reports by Stelwagon⁷, Hamburger⁸, Shelmire⁹, Hutchins¹⁰, Moorhead¹¹, and others then followed.

The casual parasite is not the same in every instance. Sokolow⁵, Rudell¹², Knowles¹³, Schalek¹⁴, Corrigan¹⁵, Austman¹⁶, Miller¹⁷,

Montgomery¹⁸, Bedford and Williams¹⁹ all demonstrated that the larvae of *Gastrophilus*, the bot fly, was one of the causative organisms. Just how infection occurs in this group is not known. The larvae of *Gastrophilus* usually can be seen with a hand magnifying lens on the skin of an infected person as a black dot or speck one cm. or more ahead of the progressing end of a linear lesion. Once the larva is located it can easily be removed in much the same manner as *Sarcoptes scabiei* is removed from its burrow, since it is situated in the superficial layers of the skin. The larva measures from one to 1.5 mm. in length and 0.5 mm. in width, has ten segments and is provided with hooklets about the head. Knowles¹³ excised an entire burrow and made over 4000 serial sections. Probably 20 of 4000 sections showed the parasite in the epidermis, rather close to the horny layer. Miller states that this form of disease due to the invasion of the skin by larvae of the horse bot fly should be of interest to those living in the north central states, but admits that this type of "creeping eruption" is rather rare. However, he thought it probable that the incidence may be much higher, but that the cases have not been recognized, or if recognized have not been reported. Shelmire²⁰ reported that in no single instance has this larva ever been recovered from the hundreds of cases occurring in Texas and Florida. He feels that it is incorrect for one to believe that "creeping eruption" is frequently due to this bot fly larva.

There is another group due to the invasion of the skin by the larval forms of the cattle grub fly, *Hypoderma*. Topsant²¹ reported a case from France in which the larva traveled as a small lump beneath the skin and was accompanied by pain. The larva was removed from a swelling as large as a hazelnut. Shelmire claims that the migrations of the larvae in these cases were deep, and that the parasites were usually recovered from abscesses, tumors and furuncle-like lesions; only occasionally did they produce linear lesions on the skin surface. When linear lesions do occur, the larvae often traverse the length of the body and remain in the skin for several months. In such cases, painful, nodular swellings occur during the resting stages of the larvae.

"Creeping eruption" has occurred in Siam, the Malay States, China and Japan from pig and cat nematodes of the genus *Gnathostoma*, as evidenced by reports of Tamura²² and Morishita and Faust²³. Most of the lesions in these cases were cutaneous abscesses and tumors, somewhat similar to the lesions caused by *Hypoderma*. The elongated worms, often one cm. or more in length, were removed from their burrows without difficulty. Such a disease has never been reported in this country.

In 1927, Wright, Klauder and Hollingsworth²⁴ presented before the Philadelphia Dermatological Society a child, ten years of age, with a raised linear serpiginous eruption which started on the sole of the left foot, migrated over the outer side and onto the dorsum of the foot. From the terminal portion of the lesion an organism was removed. Dove and Rohner of the Bureau of Entomology, Washington, identified this as an ant, *Selenopsis geminata* Fabr. var. *rufa* Jerd.

Kirby-Smith, who has contributed more to the knowledge of this disease than any other person in this country, described still another but most important group prevalent along the coastal parts of our south Atlantic states, sections of the Gulf region as far west as Texas, and in the sandy areas of Arkansas and Oklahoma, due to the larval stage of a nematode. Kirby-Smith, Dove and White²⁵ reported in 1926 for the first time the casual nematode larva. Because they were unable to discover the adult worm of the species, they provisionally called this larva *Agamonematodum migrans*. Feces of dogs and cats inhabiting the localities at the time creeping eruption was most prevalent were then cultured for larvae by White and Dove²⁶. Autopsies were performed on these dogs and cats and two species of worms having third-stage larvae were found, *Ancylostoma braziliense* and *Ancylostoma caninum*. When pure cultures of *Ancylostoma braziliense* were applied to the human skin, characteristic lesions of creeping eruption developed, but when pure cultures of *Ancylostoma caninum* were used in a similar manner typical lesions did not occur. They described the larva as being 600 microns (0.5 mm.) in length, and 20 microns in width. The larvae do not multiply or reach maturity in the human skin. In none of the experimen-

tal cases did intestinal hookworm disease develop in man, stool cultures always being negative for larvae. Moist sand was found to be a good medium for the growth of the larvae. Dryness definitely retarded their growth as well as low atmospheric temperatures. All these experimentations were confirmed by Shel mire²⁰. Penetrations of the human skin by the larvae readily take place in the presence of atmospheric temperatures sufficient to cause visible perspiration. Following the penetration of the skin there is usually felt a stinging sensation within ten minutes. This subjective symptom may be delayed for more than an hour or may be entirely absent, as illustrated in the case reported by McCarthy²⁷. The larvae remain at the points of ingress before starting to migrate. Shortly following this entrance, macules slightly larger than the head of a pin develop. Within an hour or more the macules develop into urticarial or papular lesions similar to that of the bites of chiggers or mosquitoes. From these points, advancing threadlike or linear lesions are usually observed in from two to four days, although in McCarthy's patient it was not observed until two months had elapsed. The development of linear lesions is preceded by itching. The slightly elevated portion of skin over a burrow resembles that made by a mole in the meadows. Abrupt changes in direction of the lesions are usually observed, giving rise to the characteristic linear, tortuous and serpiginous configuration. The migration may continue for several weeks or even months. In cases of long duration the travel of the parasite is interrupted by periods of rest. The advancing portion of a lesion may be seen as a thin thread-like hyperemic line with practically no elevation at the extreme point. The older part of the lesion is usually more elevated, while further along toward the advancing end may be seen papules, vesicles, or even bullae. Itching is so intense at times as to be almost unbearable, especially at night when the migration may even be accompanied by a stinging type of pain. Due to scratching, bacterial infections frequently occur, resulting in pustule formation, either superficial or deep or even progressing to abscess formation. Considerable variation occurs in the rate of migration. While the distance traveled by the

parasite during twenty-four hours may exceed an inch, the daily average is usually a fraction of this distance. Lesions have been observed on every part of the body. The eruption, however, occurs more often on the feet, as infection takes place on those portions of the body that come in contact with polluted soil. The buttocks and hands are also frequently infected.

Despite frequent attempts mechanically to remove the larva *Ancylostoma braziliense* from a lesion, Hume²⁸ has been the only one to have reported the successful removal of the parasite. This he was able to do in only one instance, despite numerous attempts.

The usual hosts of the intestinal parasite, *Ancylostoma braziliense*, in this country are dogs and cats. Eggs are deposited on the ground through the feces of dogs and cats harboring the intestinal hookworm. With proper moisture in the soil together with proper warmth, the larvae then develop. Within twenty-four hours the first stage larvae are produced. These continue to develop until they reach the actively migrating second stage larval forms four days later. It is in this stage that the larvae penetrate the skin after losing their chitinous sheath. No further development of the larvae takes place following penetration.

The microscopic demonstration of the larvae in sections of tissue removed for biopsy is not always easy. Kirby-Smith, Dove and White²⁵ were able to demonstrate the larvae in only five out of forty-eight skin excisions studied from serial microtone sections. They made more than 40,000 sections. McCarthy²⁷, after studying 118 sections, was able to find the larva in only six slides. The difficulty in demonstrating the larva is due not only to its small size, but also to the fact that the parasite lies in the skin some distance ahead of the visible advancing end of the burrow. This makes it impossible to calculate accurately the size of the biopsy necessary to include the larva.

Kirby-Smith, Dove and White²⁹ reported that infections were most frequent during the summer, especially following rainy weather, along the coastal plains from New Jersey south and west to Texas inclusive, and in sections with a sandy type of soil. The disease

is not seen during the winter months. Persons become infected when they come in contact with damp, sandy soil contaminated with second stage larvae of *Ancylostoma braziliense*. Floating surface water following rain-fall may transport the larvae from one infested spot to other places. The parasites may also be disseminated by the water of streams. Many patients have traced their infections to the beach while lying on the damp sand slightly above the level of high tide and in front of the board walks. Other areas of damp, sandy soil contaminated by dogs and cats have been sources of infection, such as banks of streams, sand boxes, children's playgrounds, sand near buildings, and flower and vegetable gardens. Infection sometimes occurs from soil which has been hauled in grading. Patients most extensively infected, according to Kirby-Smith, have attributed the source of their infection to contact with damp, sandy soil while working underneath houses, wet with perspiration. Plumbers, electricians, masons and gardeners may become infected from polluted soil while following their respective occupations. Wet clothing exposes the skin to invasion by the parasite, whereas dry clothing protects against infection.

Dove³⁰ reported that creeping eruption appears to be distributed according to the exposure of persons to infected soil, and not to any susceptibility of an individual. The lack of susceptibility encountered in the negro race, in whom the disease is rare, is not fully understood.

Creeping eruption may occur at any age, but the greatest number of cases are seen in children, especially during the midsummer, when many of them go barefoot and come in contact with soil infested with larvae. It is also during the summer months that adults as well as children frequent the beaches and come in direct contact with polluted sand. Again, it is also during the hotter and more humid weather that workmen, wet with perspiration, as in the writer's case, lose their protection from creeping eruption infections afforded them by dry clothing.

The treatment of creeping eruption has been recently described by Kirby-Smith³¹. Prophylaxis consists in the prohibiting of children to go barefooted during the summer

months in localities where creeping eruption might occur, especially when the soil is wet following rains. Children should not be permitted to wade in the streets or places where floating surface water is flowing or has stood. Neither should they wade in or along the banks of streams. Adults and children should be careful not to sit on or expose their bodies to soil or other wet places polluted with larvae of *Ancylostoma braziliense*. Vagrant dogs and cats should not be permitted in areas where the disease is prevalent. Dogs and cats should be prohibited especially from frequenting beaches and play places of children.

The success of the treatment of creeping eruption is dependent upon the destruction or removal of the larva. It is the inability at times to locate the parasite accurately, because of its travels in advance of the visible lesion, that makes the treatment difficult. If one is dealing with only a single lesion, the ideal treatment would be excision, provided it were certain that the larva was included in the excised skin. Of this one cannot always be assured. Kirby-Smith reports that it is apparently impossible to cure this disease with simple measures as are used in the treatment of other parasitic infections, such as scabies and simple types of dermatophytosis. The best method of curing creeping eruption, according to Kirby-Smith, is refrigeration, either with ethyl chloride spray or solid carbon dioxide. Shelmire⁹ first proposed the use of ethyl chloride spray. Ketron³² was also successful in using this freezing method. In uncomplicated lesions an area of about the size of a twenty-five cent piece including but also in advance of the progressing end of a burrow, is thoroughly frozen with an ethyl chloride spray for from two to four minutes, according to Kirby-Smith. The writer, in the case reported, used an ethyl chloride spray for approximately thirty seconds, but some of the lesions had to be treated on two or three different occasions. However, over fifty percent of the lesions were cured by only one application. Kirby-Smith reported that the area to be treated could at times be determined with the cooperation of the patient, the spot where the itching is most intense being then outlined with mercuriochrome and thoroughly

frozen from two to four minutes. With each visit the whole field is carefully gone over in this manner, determining in advance the location and number of lesions to be treated on that particular day. The treatments, according to Kirby-Smith, should produce bullae. With a sterile needle, the serum should be withdrawn from the bullae the following day and a dry, sterile gauze applied. No bullae were produced following treatments in the author's case. This was due, no doubt, to the fact that no lesion was refrigerated for as long a time as that advocated by Kirby-Smith.

As the majority of cases occur in children, it is not always possible to get the cooperation of the patient in determining the area to be treated. Many of them have the infection, according to Kirby-Smith, on the feet or hands, and have usually, before consulting a physician, been treated at home with various chemical irritants, or have developed secondary pyogenic infections from scratching the intensely itchy lesions. When first seen, all bullae and pustules should be opened and drained and treated locally with a mild antiseptic. This same procedure should be practiced in adults who have multiple lesions with secondary superficial pyogenic dermatitis, furuncles or even abscess formation. For several days the infected areas should be treated with mild antiseptic solutions, such as Burow's. When the secondary infection has subsided, and the active lesions become well defined, refrigeration then can be used. The treatments are continued until itching is no longer present and no active lesions are observed.

The injection of various chemicals, such as chloroform, tincture of iodine, benzine, etc., in and around the lesions is, according to Kirby-Smith, impractical. Klauder and Greenbaum³³, however, cured a case of creeping eruption in about five days after daily application of tincture of iodine to the entire length of the burrow. Kirby-Smith, who is under the impression that he was the first to use a crayon of solid carbon dioxide effectively in 1910, does not advocate this procedure because of the extreme pain and the slow healing of the treated area. Electro-dessication, he

feels, is a very difficult and doubtful procedure.

COMMENT

Although I fully realize that the etiology of creeping eruption cannot be accurately determined unless the organism is actually demonstrated, it seems reasonable to presume that the case reported here was creeping eruption caused by larvae of *Ancylostoma braziliense* because of the following reasons:

1. The patient contracted the disease within the geographical area, as mentioned by Kirby-Smith, Dove and White, in which larvae of a cat or dog hookworm, *Ancylostoma braziliense*, are most likely to be found.
2. The history of body contact with moist sandy soil underneath a house on a hot, humid day while the patient was wet with perspiration.
3. The probability that the soil was infested during the summer with larvae from a dog who had previously inhabited this site.

CONCLUSION

An extensive case of creeping eruption is reported for the first time as having originated from the state of Delaware, the etiology of which was probably the larvae of *Ancylostoma braziliense*. Treatment was successful following the refrigeration of the lesions with an ethyl chloride spray and solid carbon dioxide.

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UROLOGY: ITS RELATION TO GENERAL MEDICINE*

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In selecting a subject to present before this Society it occurred to me that most of the men, especially those who are engaged in general practice, would perhaps be more interested in hearing a general discussion rather than a formal topic. Therefore, with your indulgence, I shall endeavor to emphasize some of the more common urological conditions encountered in general practice.

Prior to about twenty-five years ago the urologist was looked upon as nothing more than a venerologist by both the profession and the public. But, with the advent of the cystoscope by Nietze, which has been progressively

improved by Young, McCarthy, and others, he has, with the aid of the x-ray, been able to explore all of the genito-urinary cavities, thereby putting urology on a solid foundation and making it a dignified specialty, of which none excel and few equal. McCarthy states that urology is within 5% of an exact science, as to diagnosis; while the Mayo Clinic claims it is within about 3%.

It was the urologist who first routinely employed blood chemistry and renal functional tests, with a resulting lowering of the mortality rate, from about 85% to 5%, in prostatectomy. To this has been added retrograde and intravenous urethro-pylography, cystography, and seminal vesiculography. These are only a few of the advances that have been made in urology, to say nothing of the development and refinement of the many urologic instruments within the past decade.

URINARY RETENTION AND INCONTINENCE

There are perhaps no other urological conditions met with as frequently in general practice as that of chronic urinary retention and incontinence in the aged, with its attending symptoms of urinary frequency, dribbling, etc. And here one is likely to mistake the retention for the incontinence. Not infrequently some of these patients will present themselves complaining of symptoms remote from their urinary tract, such as loss of appetite, nausea, vomiting, neuralgia, etc., which, as is well known, is due to the retention of their nitrogenous toxins. By employing palpation and percussion, the extent of the distended bladder may be determined, after which a catheter best adapted for introduction should be passed into the bladder, and just enough urine withdrawn to relieve the distress if present, but never more than 8 to 12 ounces, at the beginning. To violate this dictum is to invite disaster.

Many methods have been devised for decompressing a chronically over-distended bladder, but none is as practical as allowing 2 to 3 ounces of urine to escape from an indwelling catheter at intervals of 15 to 20 minutes, and at the same time giving the patient sufficient fluids so that the intake will be about 2/3 to 3/4 of the output.

All retention and incontinent cases should have a blood and spinal fluid Wassermann

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test, as well as a neurological examination, to rule out the possibility of a cord bladder.

HEMATURIA

No condition in urology should concern the general practitioner and the urologist more than this, and especially do I refer to painless hematuria, since it is a danger signal calling for help, and not infrequently is the first sign of cancer somewhere along the genito-urinary tract. This type of hematuria is usually intermittent, and the cessation of bleeding may be attributed at times to the administration of a drug, which is responsible in some cases for the delay and loss of valuable time, prior to diagnosis and treatment. There is no better time for a cystoscopic examination than during the bleeding, when the source can be visualized and its origin determined, by whatever methods may be necessary.

If cancer of the bladder is recognized early, before it has infiltrated the bladder wall and metastasis has taken place, which is usually late, it can, in a majority of cases, be successfully treated through the cystoscope by fulguration and radon implantation, and with deep x-ray therapy.

PYURIA

Pyuria occupies an important place in urology, since it indicates certain damaging processes in the genito-urinary tract; however, it is beyond the time allotted and scope of this paper to discuss all of its sources (Fig. 1). In the presence of symptoms of generalized infection, with recurrent fever, an investigation of the genito-urinary tract should always be made as a possible source, after other foci of infection have been eliminated. About 65% of all cases of renal tuberculosis are presented clinically with the picture of chronic cystitis; hence, if a pyuria persists with symptoms incident to this affection, one should suspect renal tuberculosis. In about 10% of the cases of this disease a symptomless pyuria is an outstanding picture. And it is to this small group that I would like to direct your attention, because some are permitted to progress until both kidneys are involved.

In about 90% of all cases of renal tuberculosis the disease remains confined to one kidney for a relatively long period, two to three years; therefore, it is obvious that early diagnosis would result in the saving of lives, since nephrectomy will result in about 60% of cures if the disease is still unilateral.

The teaching of urology has impressed upon every surgeon's mind the importance of a urological study in all obscure abdominal conditions, with the result that fewer mistaken diagnoses are being made in cases where urinary calculi, renal ptosis, and other urological conditions are the actual underlying causes. It is seldom that medical men continue to treat persistent hematuria, pyuria, pyrexia, and dribbling of urine without first determining their causes; however, there are a few who do make this mistake, and it is for the benefit of this minor group that these words of caution are offered.

The following cases will illustrate some of the conditions which I have just mentioned:

CASE I.—Retention and Incontinence from Prostatic Obstruction

White male, age 75 yrs. Admitted to the hospital July 28, 1937; complaining of pain in lower abdomen, dribbling and incontinence of urine for past year. Patient appeared quite toxic, dehydrated and emaciated. Temperature on admission 101°, pulse 90, and respira-

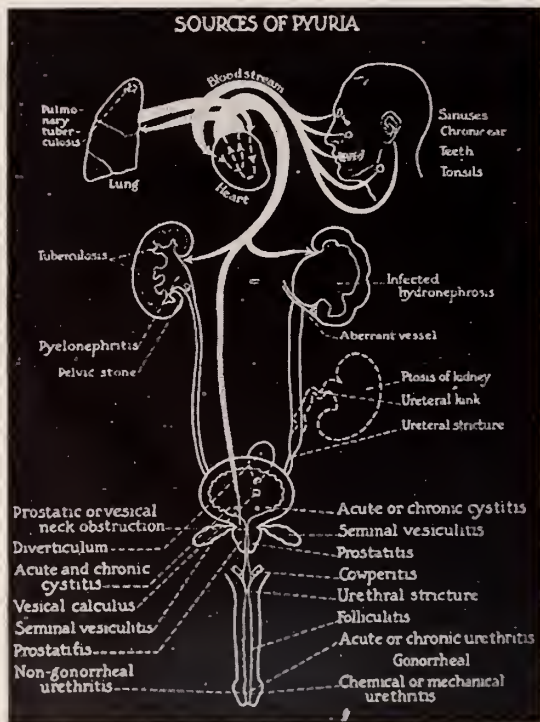


FIG. 1
By courtesy of the Henry Laboratories, Incorporated, Chicago



FIG. 2A
Bladder, completely filled with 12½% sodium iodide solution, showing marked trabeculation.



FIG. 2B
Another radiograph, made 15 minutes following cystogram, showing reflux of the sodium iodide solution up right hydro-ureter and kidney. Also, beginning reflux up left ureter.

tions 22. Palpation and percussion of abdomen revealed a bladder distended to the umbilicus, which was decompressed gradually.

Blood chemistry: urea nitrogen, 51 mgms; creatinin, 2.5 mgms.

August 25th: urea nitrogen, 24 mgms.

August 26th: cystogram. (Figs. 2A and 2B.)

Blood and spinal fluid Wassermann tests were negative.

September 14th, suprapubic cystostomy was done on account of patient having developed a peri-urethral abscess.

November 4th, transurethral resection of prostate. Recovery uneventful.

November 26th, patient discharged from hospital, completely relieved of his urinary symptoms.

CASE II.—*Hematuria, from Malignant Tumor of Kidney*

White female, age 46 yrs. Admitted to the hospital July 30, 1937; complaining of hematuria which she had off and on since 1931. Her attacks of bleeding were free of pain, except while passing strings of clots. She was treated by her family physician for each at-



FIG. 3
Retrograde pyelographic radiogram of both kidneys, showing tremendous enlargement of left kidney and distortion of ureter with elongation and irregularity of calyces.

tack of hematuria, who after five years, in June, 1936, referred her for a urological examination. She was cystoscoped but unfortunately not x-rayed and therefore was assured that she had no tumors.

In June, 1937, patient consulted another physician who referred her for a urological study. She was cystoscoped while bleeding and pyelographic x-rays (Fig. 3) were made, yielding a tentative diagnosis of malignancy of left kidney, which was confirmed by nephrectomy and pathological examination.

CASE III.—*Pyuria and Frequency from Tuberculosis*

White female, age 44 yrs. Admitted to the hospital June 11, 1936; complaining of frequency of urination, burning and cloudy urine for the past ten or twelve months, and pain in her left kidney region during the past three months.

Pyelograms (Fig. 4) indicated tuberculosis of the left kidney.



FIG. 4

Retrograde pyelographic radiogram of left kidney showing marked enlargement and distortion and clubbing of calyces.

Sediment of urine from bladder was negative for T. B., while urine obtained from left kidney revealed many T. B. bacilli. This was confirmed by guinea-pig inoculation, as well

as by pathological examination following left nephrectomy.

Fluoroscopic and x-ray examination of chest shows evidence of pulmonary T. B.

This patient is also a diabetic. I may mention that her attending physician had already made a tentative diagnosis of tuberculosis of left kidney and bladder prior to referring.

CASE IV.—*Pyuria and Hematuria, from Papillomata*

White male, age 59 yrs. Admitted to the hospital May 1, 1933; complaining of frequency of urination, associated with dysuria, cloudy urine and at times with hematuria, of two years duration.



FIG. 5

Flat radiogram of bladder, showing large calculus and remains of radon seed which were previously implanted in the treatment of bladder growth.

Cystoscopy revealed three papillomatous growths about 3 to 4 cm. in diameter situated on both lateral walls and base of bladder, just internal to sphincter. Biopsy of tissue obtained from growths revealed papillary carcinoma, grade I.

May 20, 1933, a suprapubic cystotomy was done, growths were removed with tissue forceps and their bases implanted with 19 radon seeds, 2 m. e. each, at a distance of 1 cm. apart.

In August 1933, he was given three deep x-ray treatments of 200 K. V. each, but re-

fused to take more. He gained weight and had no further bladder symptoms until about six months ago, when he again had frequency, burning and dysuria.

June 6, 1937, he was readmitted to the hospital. X-ray and cystoscopy revealed a large calculus in bladder (Fig. 5), which was removed suprapubically. No further evidence of growths was observed.

X-rays of lungs and bony structures showed no evidence of metastases.

CASE V.—*Nephrolithiasis*

White male, age 38 yrs. Admitted to the hospital January 27, 1935; complaining of pain in the right side of abdomen since 1932.

Appendectomy in 1933. Re-operated on six to eight months later for adhesions which were thought to have developed following his appendectomy. No relief was obtained from his operations.

Cystoscoped and x-rayed in 1934 with negative findings.

X-ray of right kidney in 1935 (Fig. 6), revealed three small calculi, which were re-

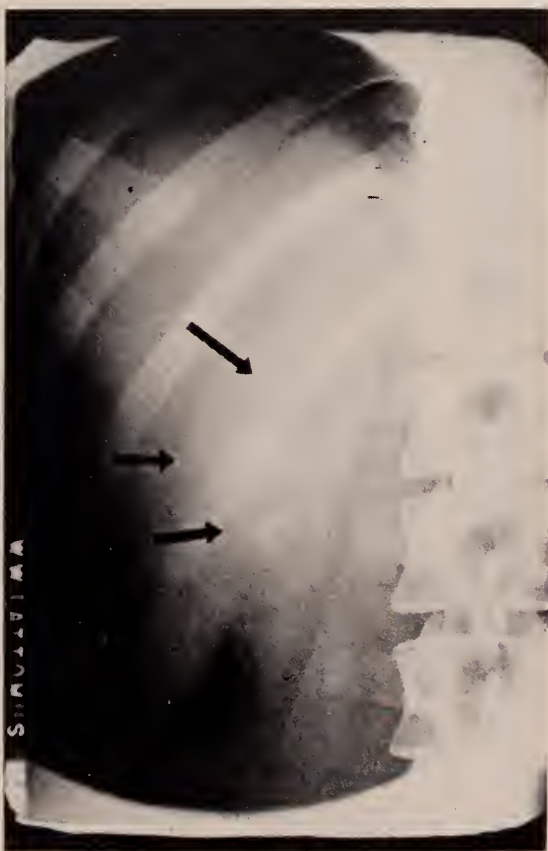


FIG. 6
Flat radiogram of right kidney showing three calculi in the lower, middle, and upper calyces.

moved by nephrotomy, followed by complete relief of symptoms.

CASE VI.—*Nephroptosis*

White female, age 21 yrs. Admitted to the hospital May 26, 1936; complaining of pain in right abdomen and loin of two years duration.

In January, 1935, patient entered hospital complaining of pain in right lower abdomen, frequency of urination and burning. Cystoscopy and pyelographic x-rays at this time revealed a cystitis and a ptosis of right kidney (Fig. 7A). After her acute symptoms subsided she was fitted with an abdominal support with kidney pad, which partly relieved her pain in right abdomen. In May, 1935, patient was seized with acute colicky pains in right abdomen. She was re-admitted to hospital and had her appendix removed, which contained a fecal concretion and also showed evidence of inflammation.

Following her appendectomy she continued to complain of pain in loin and right abdomen. In June 1936 a nephropexy was done according to Woodruff's method, with the end results as shown (Fig. 7B), and complete relief of her symptoms.

DISCUSSION

SECRETARY SPEER: If you gentlemen knew how the Program Committee tried to get members of this Society to present papers, and how difficult it was, after coming and listening to a paper like Dr. Anderson's you would realize that it only serves to prove that we do not have to go outside of our own state to make up a program, if the men will only get down to work and do what they are asked to do—to give us just the results of their own experiences.

This paper that we have just had, to my mind, is a very excellent one. It shows results that are being obtained right here in town, and I think it is a credit to our Society. I think that more men should give their time and their effort to do the same thing.

DR. W. E. BIRD (Wilmington): There are extremely few conditions for which consultants need be imported from out of the state. We have developed in this community now—I mean the state at large—men who have specialized in one field or another to the point where they are doing a great deal of work that compares not only with any small com-

munity, but very favorably with the largest communities in which there are teaching centers. There is not a man here who is not fully cognizant of that fact.

I want to make one comment about the contents of Dr. Anderson's paper. It is a splendid piece of work. We seldom see such beautiful pictures of injected seminal vesicles, for instance, just to mention one phase of the work.

The paper brings to my mind, clinically, the fact that we are not urologically minded enough. In my experiences I have taken out an appendix that looked as though its pathology could explain the patient's symptoms, only to find to my chagrin that the symptoms were not removed.

A few years ago the American Surgical Association spent a whole day discussing the problem of chronic appendicitis. They indicted the surgeons and the surgical results. In other words, they were criticizing themselves; and why? Simply because there is no

operation performed on the human abdomen which has as unsatisfactory results as the operation for chronic appendicitis; and that in turn simply causes in a great number of instances the realization that at the time of operation, the appendix pathology alone is not sufficient to explain the patient's symptoms, for, following the operation, he still has the symptoms.

One thing that must be eliminated in any right-sided condition, of course, is the urinary tract. I do not think we bear the G. U. system in mind quite enough when we examine the abdomen.

I remember, a few years ago, I was down in Savannah. Like Delaware, they have but one famous Dr. White. If you write a letter to "Dr. White, Georgia," it would go to Dr. George White, Savannah, just as if you would write a letter to "Dr. White, Delaware," it would be delivered to Dr. Charles White, Wilmington.



FIG. 7A

Retrograde pyelographic radiograms of right kidney and ureter in both the Trendelenberg and upright positions showing ptosis of kidney and angulation of ureter.



FIG. 7B

Intravenous urogram made in both the Trendelenberg and upright positions six months following nephropexy which shows the kidney to be in normal position.



FIG. 8

A normal seminal vesiculogram.



FIG. 9

A vesiculogram of chronic seminal vesiculitis following gonorrhoea, which shows distortion and irregularity of the rugae.

Dr. White was operating on a case of so-called chronic appendicitis, and he had an experience that showed something that I had never seen before and have only seen once or twice since—a contraction of the tendon of the psoas parvus. He has made up his mind that whenever he does a so-called chronic appendectomy, he is not only going to make incision enough to explore the whole abdomen with his hand, but, among other details, he is going to bear in mind to feel for a contraction of the psoas parvus, because he had it happen that he had operated before, only to find the symptoms returned almost as soon as the effect of the anesthesia was over. He had to go in again, and then discovered the contracted tendon, divided it, and presto: relief!

I thank you, Dr. Anderson, for bringing these conditions to our attention. We should be more urologically minded.

PRESIDENT WHITE: Are there any further comments?

What Dr. Bird said as to the letters that might come to Dr. White is all right, but you can go a step beyond that. Some years ago I was always getting letters for a Dr. White whose first initials were A. C. I always opened these letters and quickly closed them again, and gave them to the postman because they were not for this Dr. White. They were for another Dr. White, who since then committed suicide.

Does anybody wish to comment further on this paper? If not, we will ask Dr. Anderson if he has anything further to say.

DR. ANDERSON: I would just like to mention that this work on the injection of the seminal vesicles was developed by Drs. Ritter and McCarthy of New York.

FORCED DRAINAGE OF THE CENTRAL NERVOUS SYSTEM

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In the treatment of infections of almost any type, the simple procedure of "forcing fluids"

is of inestimable value in diluting toxins and in carrying the by-products of the infectious processes to excretory channels. However, the anatomy of the central nervous system is such that a somewhat more complicated procedure, known as "forced perivascular (spinal) drainage" is more effective in combatting infections of the central nervous system. Let us first review a few essential points of anatomy and physiology.

Anatomy. The central canal of the spinal cord is continued upwards through the lower part of the medulla oblongata and opens into the fourth ventricle. The cerebral aqueduct serves to connect the fourth with the third ventricle, while the Foramen of Monro connects the two lateral ventricles with the third ventricle and with each other. Projecting into all the ventricles are highly vascular fringed processes, the choroid plexuses, derived from the tela choroidea, a fold of pia mater. Lining the choroid plexuses, and all the ventricles, and central canal, is an ependymal layer, consisting of ciliated columnar cells. The bulk of cerebrospinal fluid is elaborated by the choroid plexuses and by the ependyma of the central canal. A small portion, however, is derived from the nerve cells themselves and by transudation from capillary vessels, in the parenchyma of the brain and spinal cord. This portion reaches the subarachnoid space through perivascular channels which surround all the blood vessels entering the brain and spinal cord.

In the roof of the fourth ventricle are two lateral openings (foramina of Luschka) and a medial opening (foramen of Majendie). These allow the cerebrospinal fluid from the ventricles and central canal to enter the subarachnoid space. The cerebrospinal fluid is absorbed in two ways: Through the arachnoid villi into the great dural sinuses, and into true lymphatic vessels by an indirect perineural course.

Physiology. The production of cerebrospinal fluid follows very much the same principles as governs the production of lymph in

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general. The osmotic pressure of the non-diffusible colloids of the blood is 25 to 40 mm. of mercury. A force greater than this, then, is necessary to promote the flow of fluid out of an arterial capillary. This force is provided by the blood pressure in the arterial capillary, and by the osmotic pressure of the pericellular fluid. There are several ways by which the production of lymph can be accelerated: 1. Raised arterial blood pressure.

2. Increased metabolism of the cells which increases the osmotic pressure of the lymph.

3. Lowering the osmotic pressure of the blood by injection of hypotonic solution.

4. Preventing re-absorption of lymph on the venous side by venous obstruction. In the central nervous system, the choroid plexus is a barrier against venous re-absorption.

5. Increased permeability of the capillary wall. This occurs in inflammations of any type.

DEVELOPMENT OF FORCED DRAINAGE OF THE C. N. S.

In 1919, Weed and McKibben (1) studied the effects of intravenous injections of various concentrations of solutions, on the brain and spinal cord of cats. Using a manometer attached to a spinal puncture needle, they found that isotonic solutions caused but a slight rise in cerebrospinal fluid pressure, whereas the injection of distilled water gave a very marked and lasting rise in pressure. In some cases (2) they trephined the skull; in others, they did not. On studying the brains histologically, they found that in the latter cases (using hypotonic solutions), there were dilated pericellular spaces, while in the former (using either solution), the brain was histologically normal.

In 1923, (3) Weed, continuing these experiments, injected hypotonic solutions intravenously and examined the brains histologically. The cells of the choroid plexus were found to be increased in volume and otherwise changed. In the cerebral cortex there was much edematous tissue and the perivascular channels were markedly distended, as were also the perineuronal spaces, but the nerve cells were not compressed. Weed noted further, that the greatest histological changes occurred in those animals which had exhibited the greatest increase in cerebrospinal fluid pressure.

In 1925, Kubie and Schultz (4) found that on irritating the meninges of cats, lymphocytes entered the perivascular spaces in large numbers. On draining the cerebrospinal fluid, these lymphocytes poured out into the subarachnoid space. The first drainage specimens contained a relatively high percentage of polymorphonuclear cells and macrophages, but as the drainage continued these cells decreased in number while the lymphocytes rose from 20 to 80 per cent. An intravenous infusion of distilled water was then given simultaneously with the drainage, and spinal fluid again began pouring out. This time the cells were almost entirely lymphocytes. The tissues were then studied microscopically and it was found that the infiltration in the perivascular channels had been washed out, by this method of giving intravenous hypotonic solutions coincident with drainage of the subarachnoid space.

Kubie (5) next tried to find out if the intracranial pressure is increased by this procedure. He trephined dogs, inserted canulas snugly into the openings and connected these to manometers. On injecting hypotonic solutions, the intracranial pressure rose markedly. When the cisterna were being drained, however, the pressure rise was small and of short duration. On giving tap water by mouth, there also was a rise in intracranial pressure at first; later it dropped, as the kidneys established diuresis.

Weed and McKibben had shown that no hydration of the brain takes place on the administration of intravenous hypotonic solutions, in animals whose skulls have been trephined. In 1928, Kubie (6) undertook to show that cisternal puncture would give the same effect as trephining. Using rabbits and dogs, he drained half of the animals, while the other half was not drained. The former showed no edema of the brain. In the latter, hydration of the brain took place and this was found to be predominantly in certain areas, namely: the ventricles and central canal, choroid plexus, perineuronal space, and perivascular channels. There was no hydration of the neurones.

The first clinical application of all these experiments was reported by Spurling (7) in May, 1928. He treated a case of poliomyelitis, two cases of brain abscess, and four of men-

ingitis. His procedure was to remove the second lumbar vertebra, incise the dura mater and insert a rubber drain. He stated: "Fluid intake should be kept as high as possible, not lower than 500 c. e. per 24 hours. Fluids may be given by mouth, hypodermically, by rectum, intravenously or intraperitoneally."

In June, 1928, Kubie (8) studied the effects of "forced drainage" of the cerebrospinal fluid on human beings. With spinal puncture needle in place, he gave hypodermoclyses of 200-300 c. e. of 0.45% to 0.9% solutions to three infants, intravenous injections of the same to five patients, and fluids by mouth to five others. The subcutaneous route was least effective in increasing the flow of cerebrospinal fluid. There were no ill effects in any case. He noted that the types of cells which increased in the cerebrospinal fluid depended on the types of cellular exudate in the depths of the central nervous system tissue.

Fremont-Smith, Putnam, and Cobb (9) in 1930 employed a modification of Kubie's method in 16 patients with non-suppurative diseases of the central nervous system. They confirmed Kubie's idea of perivascular lavage. About the same time Virgil Casten (10) successfully used the method in an attempt to wash the arsenic out of the cerebrospinal fluid, in a case of trypanamide amblyopia.

TECHNIQUE AND PROCEDURE

The procedure of forced drainage of the central nervous system is as yet subject to considerable variation. The procedure advocated by Retan (11) in November, 1937, for poliomyelitis, is as follows: 1. With patient on Bradford frame, a lumbar puncture is performed.

2. Only enough cerebrospinal fluid as is needed for laboratory examination, is removed.

3. Stylette is replaced in the spinal needle and patient rotated onto his back so that the needle projects through a window in the Bradford frame.

4. An intravenous infusion of 0.375% sodium chloride solution is given at the rate of 10 c. e. per pound of body weight per hour for three hours, and at a slightly slower rate for two hours longer.

5. At half-hour intervals the nurse allows 2 to 5 c. e. of cerebrospinal fluid to flow from the spinal needle.

6. The interval between the first and second treatments must not exceed four hours; between the second and third treatments, six hours.

7. Indications for further treatment, are: (a) cell count above 20, twelve hours after completion of third treatment; (b) continued elevation of temperature; (c) any change in the reflex picture.

From other papers by Retan (12) (13), the following points of technique may be added: Several hours before treatment, give the patient food high in protein content and also a few glasses of water. If the patient is dehydrated, precede the treatment with a elysis of normal saline. After spinal puncture, be certain that the Queckenstedt test is positive. If the cerebrospinal fluid spurts out, replace the stylette and remove it only intermittently until the spinal fluid pressure is nearer to normal.

The Bradford frame should be as long as the bed, 30 to 40 inches wide, and may be supported on blocks or suspended from hooks. The head of the frame should be eight inches higher than the foot. To protect the patient from exposure underneath the frame, blankets or heat by electric lights may be used. If the patient is delirious, it is better to insert the intravenous needle in the foot, since the foot can be better immobilized to the Bradford frame. Sedation may or may not be employed. Retan recommends three grains of amytal two hours before starting the treatment and repeat in an hour. If there is a frontal headache during the treatment, it may be relieved by an ice-cap or an injection of codeine.

After the spinal needle is in place and the patient straightens out the legs, it may be necessary to push the needle in a bit further since straightening the legs increases the depth from the skin to the subarachnoid space by $\frac{1}{8}$ to $\frac{1}{4}$ inch. If drainage is continued for longer than a few hours, the tissues around the needle soften and the needle may slip out. In that case, resort to one of the following:

1. Replace the needle periodically.
2. Insert a large needle which is fitted over the smaller one and the smaller one withdrawn.
3. Use a needle with a Swift-wing attach-

ment. The wings of this needle are attached to the skin with adhesive tape.

4. Do a lumbar laminectomy.

THEORY OF FORCED DRAINAGE

The production of cerebrospinal fluid (13) is increased first, by dilution of the blood stream with a hypotonic solution injected intravenously, and secondly by drainage of the cerebrospinal fluid in the subarachnoid space, by lumbar puncture. The cerebrospinal fluid is thus formed not only at the choroid plexus, but also by transudation from capillaries throughout the parenchyma of the brain and spinal cord. This fluid courses through the perivascular channels to the subarachnoid space, washing with it the inflammatory exudates, toxins, etc., which are present in the perivascular spaces. Forced drainage is, in effect, a continuous lavage of inflamed central nervous system tissues. In addition, it possibly facilitates the transference of drugs and immune bodies from the blood stream to the cerebrospinal fluid. Also (14), in clearing the nervous tissues of inflammatory exudates and edema, it paves the way for intraspinal administration of drugs and serums.

MODIFICATIONS OF THE PROCEDURE

Retan (12) has done a great deal of work on monkeys experimentally inoculated with poliomyelitis and chorea, in an effort to find the best method of performing forced perivascular drainage. He points out that the variable factors which can be controlled, are:

1. Concentration of salt in the intravenous solution.
2. Rate of injection per pound hour.
3. Length of time of injection.
4. Interval between treatments.
5. Blood volume.
6. Possible use of hydration factor.
7. Use of pitressin or pituitary solution

The maximum effect would naturally be achieved with an intravenous solution which is just above the point at which hemolysis of red blood cells would occur. In vitro, this is 0.45% but actually, the intravenous solution is rapidly diluted as soon as it enters the vein. Retan at first used 0.45% solution, but he has since found 0.375% solution to be safe. In one case where a 0.2% solution was employed, hemolysis of the patient's cells took place. Reese and Shulak (15) have, however, used 0.225% sodium chloride solution in seventeen

cases, after testing the fragility of the patient's red blood cells. Each of their treatments lasts but one to two hours, and they use 1,000 c. c. of 0.45% sodium chloride solution for the first treatment. They recommend that the injection be given not faster than 20 c. c. per hour.

Virgil Casten (10) and Fremont-Smith, Putnam and Cobb injected an ampule of pituitary solution intramuscularly to prevent diuresis for several hours and thereby increase the production of cerebrospinal fluid. Casten gave two liters of water by mouth and 50 c. c. of distilled water by vein. The use of pituitrin is probably unnecessary since capillaries are more permeable in inflamed tissues and enough of the injected or ingested fluids therefore goes to the nervous tissues when they are inflamed. L. H. Smith (16) points out that once the direction of flow is well established, good results can be obtained by oral, in place of intravenous, administration of fluids.

Hydration of the brain had at first worried Retan but he now believes some hydration of the central nervous system tissues may be of benefit. Rosenhecht (17) makes use of the hydration factor by first injecting a liter of hypotonic solution, and draining the subarachnoid space after the intravenous infusion is ended.

Blood volume (17) is partly controlled by the rate of injection. An increase in blood volume can be detected by doing repeated blood counts during a course of treatment. Blood-volume changes depend on the condition of the cardiovascular system and kidneys. If the heart is weak, or the arteries inelastic, or kidney function inadequate, the injection should be given at a slower rate.

DANGERS AND CONTRA-INDICATIONS

The most serious danger (12) to be avoided is that of cerebellar herniation. It may be prevented by remembering not to limit fluids before the treatment, not to remove too much cerebrospinal fluid before beginning the intravenous infusion, and not to continue the spinal drainage after the intravenous is ended. Cerebellar herniation is most frequent in cases of septic meningitis. It may be divided clinically into three stages. In the first stage, there is suboccipital pain and projectile vomiting. Replace the stylette for one-half hour, but continue the intravenous. In the second

stage the pulse becomes slow (40 to 60), respirations also become slow and then jerky. At this point, replace the stylette, discontinue the injection, and elevate the foot of the bed. In the third stage there is bloody spinal fluid, dysphagia, clonus, convulsions, and respiratory paralysis. The treatment here is as for the second stage, but if relief is not obtained, inject 50% glucose intravenously.

Other dangers are: hemolysis of blood cells; secondary infection from the spinal needle, and chills probably due to the solution injected or to the rubber tubing.

The contra-indications to forced perivascular drainage, are: 1. Lesions into which fluid will filter and cannot escape, for example, cystic tumor, obstructive hydrocephalus, acute myelitis with block.

2. Inflammation of lungs or bronchi. As already mentioned, fluids permeate capillaries of inflamed tissues more readily, and would therefore cause acute edema of the lungs, in these conditions.

3. Acute infections or inflammatory processes elsewhere in the body, in general. If the patient has pyuria, for example, injection of hypotonic solutions will result in polyuria rather than an increase in cerebrospinal fluid production. The polyuria is beneficial, not harmful, to the kidney or bladder infection, so this would not, strictly speaking, constitute a contra-indication. However, the treatment would be useless for the disorder of the central nervous system which we are trying to treat.

4. Cardio-vascular-renal disease.

INDICATION

In anterior poliomyelitis, the Virchow-Robins perivascular spaces are dilated and infiltrated with many lymphocytes and a few polymorphonuclear cells. The first case of infantile paralysis reported treated with forced drainage was a nine-year-old girl treated by Retan (18) in 1930 for almost 28 hours; it resulted in complete recovery. Retan later experimented on monkeys and made the statement (12): "As far as I have been able to learn from a review of the literature, there have been no cures of this disease by any method when the monkey has been innoculated, with adequate doses of virulent virus. It is therefore significant that six monkeys with acute poliomyelitis treated by this method have recovered without paralysis." Retan and

Kubie (14) point out that in 106 patients with pre-paralytic infantile paralysis treated by Aycock and Luther with serum alone, one died and 65 developed paralyses. The death rate in epidemics is 5 to 40%; death is usually due to paralysis of respiratory muscles or to pneumonia following a partial paralysis of these muscles. When there is paralysis of the muscles of deglutition, the mortality is 50%. In 1937 Retan (11) reported on 57 patients with acute poliomyelitis treated with forced drainage. None died, and only three pre-paralytic cases developed paralyses. Most marked success was achieved in ten cases of respiratory paralysis and in six patients with paralysis of the muscles of deglutition. In every instance, the recovery was prompt, being apparent a few hours after completion of treatment.

The table presented herewith gives, roughly the results of treatment of various disorders of the central nervous system with forced perivascular (spinal) drainage. Not included in the table are cases of post-infectious cortical atrophy, infectious myelitis, cerebellar cyst, and headaches of undetermined origin, treated by Reese and Shulak (15) with varying results.

DISEASE	Reference	No. of Cases	Result
1. Poliomyelitis	18	1	Good
	16	1	Good
	11	57	Good
2. Meningitis			
(a) Meningococcic	19	1	Poor
(b) Staphylococcic	16	1	Poor
(c) Miscellaneous	18	3	Poor
	19	5	Poor
(d) Tuberculous	19	2	Fair
	16	1	Good
3. Syphilis of C. N. S.	18	1	Good
	16	1	Fair
	19	4	Fair
	15	1	?
4. Chorea (Sydenham's)	15	1	?
	19	1	Good
5. Encephalitis			
(a) Acute	15	2	?
	18	1	Good
	19	1	Good
(b) Chronic	19	3	Poor
	15	5	?
6. Multiple Sclerosis	9	11	?
	15	2	?
7. Tryparsamide Amblyopia....	10	1	Good

In septic meningitis, failures are often due to neglect to remove the primary focus of infection (mastoiditis, for example), or to plastic exudates on the pia-arachnoid which act as new foci and which also may obstruct the flow of cerebrospinal fluid. In a personal com-

munication, Retan advises the addition of sulfanilamide to the hypotonic solution for the treatment of streptococic or meningococic meningitis. Retan (18) reports the case of a five-month old colored baby with syphilitic meningitis which had been treated with sulpharsphenamine and bismuth unsuccessfully. It developed hydrocephalus which became progressively worse. After four courses of forced drainage with hypotonic solutions to which neoarsphenamine had been added, the baby was completely cured.

To demonstrate the safety of forced drainage, Retan (19) mentions the case of a four-year-old baby with tuberculous meningitis who was treated for 18 days, having been given but two 24-hour periods of rest. During that time, a total of 26,260 c. c. of fluids had been administered, and a total of 3,338 c. c. of cerebrospinal fluid had been drained off. The patient recovered fully.

Worth mentioning also is Virgil Casten's (10) treatment of a case of tryparsamide amblyopia. Casten states that out of 1,254 patients with neurosyphilis treated with tryparsamide, 15% developed subjective or objective visual disturbances. Arsenic appears in the cerebrospinal fluid after an intravenous injection of tryparsamide and affects the optic nerve directly; hence an attempt should be made to wash the arsenic out of the cerebrospinal fluid. Casten's patient had received two injections of tryparsamide and he rapidly became practically blind. Fundus examination revealed optic neuritis. With each course of forced drainage, his sight improved. A check-up four months later showed 20/15 vision in each eye, with only moderate peripheral contraction.

REPORT OF ORIGINAL CASES

The following patients were treated with forced drainage at the Doris Memorial Hospital, the contagious disease unit of the Wilmington General Hospital:

I. C. M., age 7, male (service of Dr. Boines, Hosp. No. 186) was admitted July 9, 1937, with the complaint of headache, drowsiness and sore throat of four days' duration, and paralysis of the right arm with pain since the day before admission. Past history is irrelevant. Physical examination revealed a drowsy child with a temperature of 102.2° F., complaining of pain in the back of his head

and frontal headache. He had an injected pharynx, rigidity of the neck, bilaterally enlarged cervical glands, some limitation of chest motion on the right side, and total flaccid paralysis of the right shoulder and arm down to the fingers. Reflexes: abdominal and cremasteric present; knee jerks increased; Babinski and ankle clonus, positive; Kernig and Brudzinski, very markedly positive. Spinal fluid examination showed a cell count of 25, faint trace of globulin; normal reduction of sugar. Blood culture, throat smear and culture, blood Wassermann and Kahn were all negative. Urine was normal. Blood count: W. B. C., 19,200; polynuclears, 80%; lymphocytes, 18%; monocytes, 2%; R. B. C., 5,370,000; hemoglobin, 84%.

The following day, forced perivascular drainage was started. 900 c. c. of 0.375% sodium chloride solution was given intravenously over a period of 5½ hours, and 47 c. c. of spinal fluid released. Two hours later, the patient's pulse became weak and thready, his respirations increased from 30 to 48 and later his chest wall became paralyzed so that his breathing was entirely diaphragmatic. A respirator was ordered, but meanwhile, a second course of forced drainage was started, five hours after completion of the first treatment. 3000 c. c. of 0.375% NaCl solution was injected intravenously, and 22 c. c. of spinal fluid withdrawn, over a period of six hours. The patient had a chill during this treatment, but his condition became much improved and he regained use of his chest muscles. Seven hours later, a third treatment was instituted and 3000 c. c. of 0.375% solution infused in six hours and 48 c. c. of spinal fluid drawn off. In the next 12 hours, the patient's temperature dropped from 103.8° to 99.4° and it never again rose above 100. His course from then on was entirely one of improvement. On July 22 he was able to move his right hand and wrist. On July 24 he could also move his right shoulder. He did not become completely afebrile until August 7. On September 10 he was discharged, with paralysis only of the right arm and forearm.

II. D. R., age 5 years, male (service of Dr. Boines, Hosp. No. 225), was transferred from the Wilmington Homeopathic Hospital on September 7, 1937. On September 5 he had had two convulsions a half-hour apart and

then vomited a great deal, following which there were four to five more convulsions. The convulsions consisted of twitchings mainly of the facial musculature, with apparent paralysis of the right side of his body. Past history revealed convulsions of the same type at the age of 1½ years. He was admitted to the Homeopathic Hospital on September 6 with temperature 102°, pulse 160, and respirations 44. Spinal fluid examination showed 20 cells per cu. mm.; globulin and sugar tests positive. The blood sugar was 167 mgm. Stool examination was negative for ova and parasites. The urine contained a trace of albumin, one plus acetone, 5 W. B. C. per H. P. F., and many small hyaline casts. Blood count: W. B. C. 12,850; polynuclears, 57%; lymphocytes, 43%; R. B. C., 3,210,000; hemoglobin, 53%; slight polychromatophilia, anisocytosis, poikilocytosis. On admission to the Doris Memorial Hospital, the patient's condition was critical. He was unconscious, but moved various part of his body at intervals. He moved his right arm much more than his left. Cervical lymph nodes were moderately enlarged, and there was slight rigidity of the neck. Reflexes: abdominal and cremasteric absent; biceps and knee-jerks hyperactive, more so on the left side; angle clonus and Babinski, positive.

Perivascular drainage was started ten hours after admission at 8:00 p. m., but one hour later the patient became cyanotic, his breathing became shallow, and respirations finally stopped at 9:45 p. m., although the heart continued to beat for five minutes longer. An autopsy was done and showed vascular congestion of the pia-arachnoid of the spinal cord, capillary congestion of the dura over the brain, and dilated vessels on the floor of the fourth ventricle, with an occasional vessel showing perivascular lymphocytic infiltration. The sulci of the brain were completely flattened and there was a marked pressure cone of the cerebellum. The histological diagnosis was poliоencephalitis; and cloudy swelling and fatty infiltration of the liver.

III. F. D., age 2 years, male (service of Dr. Boines, Hosp. No. 227), was admitted on September 8, 1937, with a history of having had colds all summer. Ten days previous, he developed a sore throat, tonsillitis, and high fever. This improved, but a week later he became feverish again and his left leg became

weak. His appetite was very poor but he had had no vomiting and no convulsions. Physical examination revealed a well-nourished baby, not very sick, with inflamed tonsils, enlarged cervical lymph nodes and some neck rigidity. He could move both legs, but his left leg was much weaker than the right. Reflexes: Babinski, positive on right side, negative Babinski and plantar reflex on left side; knee jerks, active on right side, absent on left side. Temperature, 100.2°. Pulse, 110. Respirations, 30. Urinalysis was negative. Blood count: W. B. S., 12,250; polynuclears, 37%; lymphocytes, 54%; monocytes, 2%; eosinophiles, 7%; R. B. C., 4,490,000; hemoglobin, 59%.

Forced drainage of the central nervous system was started seven hours after admission; 1500 c. c. of 0.375% solution was given and 40 c. c. spinal fluid drained, in six hours. Four hours later, the temperature came down to normal, so further treatments were not given. The patient did not develop any other paralyses nor any complications, and the weakness of his left leg improved gradually until his discharge on October 11, 1937.

IV. W. E. K., age 12 years, male (service of Dr. Levy, Hosp. No. 236), entered on September 19, 1937. On September 14, he had a headache. The next day, he had a sore throat and stiffness of the neck. He was better for a few days. Then, on the morning of admission, he woke up with a headache, vomited, had a convulsion, and became unconscious. Past history is negative except for measles at two years of age, scarlet fever at five, and rheumatic fever at nine years. Temperature on admission, 104.4°, pulse, 90, respirations, 30. Physical examination: well-developed, well-nourished white boy lying restlessly in bed, complaining of pain. Eye signs negative. Examination of fundus negative. Neck is very rigid. Reflexes: positive Brudzinski and Kernig; abdominal not elicited; cremasteric, active; knee-jerks, active; Babinski, negative. Spinal fluid report: greatly increased pressure; 7,538 leukocytes; sugar, negative; globulin, normal; culture, no growth. Blood count: W. B. C., 30,000; polynuclears, 90%; lymphocytes, 10%; R. B. C., 5,000,000; hemoglobin, 82%.

The patient was immediately given anti-meningococcal serum and in six days had re-

ceived 80,000 units of serum intraspinously, 200,000 units intravenously, and 140,000 units intramuscularly. He was also started on prontosil, 10 e. c. intramuscularly every six hours, and on September 23, prontosil solution was given subcutaneously and intraspinally.

His condition became progressively worse. Rigidity of the entire body was extreme, and retraction of the head was so severe as to cause dysphagia. Spinal fluid cell count on September 23 was 5,648. Temperature curve remained septic. The prognosis was given to the parents as hopeless.

On September 24, perivascular drainage was instituted. 1950 e. c. of 0.375% NaCl was given intravenously and 75 e. c. of cerebrospinal fluid withdrawn, over a period of six hours. The spinal fluid at the beginning of treatment was very cloudy, while at the end it was clear. The next day, there was a very marked improvement in the patient's outward appearance. Spinal taps for relief of pressure were performed several times daily from then on. On September 25, the spinal fluid contained 497 cells; on September 27, it had but 42 cells; on October 3, no cells at all could be found. The patient continued to improve every day. On October 8, however, his temperature rose to 103. An x-ray of his chest showed bronchitis. Five days later, his temperature was again normal, and he was discharged on October 25 as completely cured.

CONCLUSIONS

A discussion has been presented of forced drainage of the central nervous system, its anatomical and physiological basis, and the experiments which led to the conception and perfection of the method. The technique, ways in which the technique may be modified, and contra-indications to the procedure, have also been discussed. The results of other authors have been presented. These results show the treatment to be highly successful in anterior poliomyelitis, and quite promising in other disorders. Four original cases have also been presented; two of poliomyelitis and one of cerebrospinal meningitis, with prompt recovery; and one of poliomyelitis, which died 12 hours after admission.

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UNDULANT FEVER:

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Brucella melitensis, originally known as *Micrococcus melitensis*, is pleomorphic, its morphology in part determined by the culture medium or the preparation used for its study. Morphologically it is considered variously by several authors on bacteriology to be a coccus, a bacillus or a cocco-bacillus. On this basis, with the effect of the drug in question established against certain other pathogenic bacterial forms, Robert L. Stern and Ken W. Blake, Los Angeles (*Journal A. M. A.*, May 7, 1938), working independently, gave sulfanilamide in therapeutic doses to each of three private patients suffering from clinically and serologically established undulant fever. Highly satisfactory and prompt results with clinical cure followed. The maximal dosage according to present standards appears to be necessary.

BOOK REVIEWS

Medical Writing: the Technic and the Art. By Morris Fishbein, M. D., Editor, Journal of the American Medical Association. Cloth. Pp. 212. Chicago: American Medical Association, 1938.

This new work of Fishbein's represents the gradual evolution of his two previous works on this subject, and presents the current practice of the A. M. A. Press; it is the style book for the medical writing of today, and is especially applicable to the literature of periodicals. Written by the editor with the largest experience in America, and perhaps in the world, it is the most authoritative manual of its kind extant. Here is a book that should be in the hands of every man who attempts to write medical papers.

New and Nonofficial Remedies, 1938. Containing descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1938. Cloth. Price, \$1.50. Pp. 592, LXVI. Chicago: American Medical Association, 1938.

In this book the Council on Pharmacy and Chemistry lists and describes the medicinal preparations that it has found acceptable for general use by the medical profession.

New substances described in this volume are Sulfanilamide and Protamine Zinc Insulin, with the accepted brands. The proved value of these new additions to the physician's armamentarium bids fair to make the past year a milestone in therapeutic progress. The council is to be congratulated on the promptness with which it evaluated these drugs and established standards for their adequate control. From the first the council warned against using Sulfanilamide in untried combinations. The sad tragedy of the deaths from the rashly introduced Elixir of Sulfanilamide-Massengill starkly emphasizes the value of such a body as the council to the medical profession and the pharmaceutical manufacturers as well as to the public. Of course this potential value cannot become effective as long as those concerned refuse to follow the council in the use of new remedies.

Other noteworthy new drugs which appear in New and Nonofficial Remedies 1938 are Avertin with Amylene Hydrate, Vinethene, Pontocaine Hydrochloride, basal, general and local anesthetics respectively; Novatropine and Syntropan, synthetic mydriatics.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the "Bibliographical Index to Proprietary and Unofficial Articles Not Included in N. N. R." of much value. In this section are given references to published articles dealing with preparations that have not been accepted. These include references to the reports of the council, to reports of the A. M. A. Chemical Laboratory and to articles that have appeared in THE JOURNAL OF THE A. M. A.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1937, with the Comments That Have Appeared in The Journal. Cloth. Price, \$1.00. Pp. 201. Chicago: American Medical Association.

This book is a great deal more than a mere record of the negative actions of the Council on Pharmacy and Chemistry. It gives in full the reasons for the Council's rejection of various preparations, but it also records results of the Council's investigations of new medicinal agents not yet out of the experimental stage, and frequently contains reports on general questions concerned with the advance of rational drug therapy. All three categories of reports are represented in the present volume.

This issue of the Reports is remarkable for the series of valuable status and preliminary reports published by the Council in the past year. These include the reports on Avertin with Amylene Hydrate (now accepted for New and Nonofficial Remedies), Benzadrine Sulfate (the active constituent of the notorious "pep" pills, but a promising drug when its limitations are recognized), Catgut Sutures (a survey of the sterility of the market supply), Evipal Soluble (a comprehensive review of the evidence for the usefulness and limitations of the drug), Histidine Hydrochloride (a study of the usefulness of the drug in peptic ulcer, to be considered in connection with the report rejecting Larostidin, a proprietary brand, for unwarranted and exaggerated claims), Mandelic Acid (an authoritative statement of the limitations of this drug which the Council has now accepted), and Vinethene (a careful study of the evidence of the drug, which the Council has accepted for one year as an anesthetic to be used in short procedures).

(Concluded on Page 146)

EDITORIAL

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RE:HOSPITAL FOR NEGROES

The problem of hospital care for negroes in a city like Wilmington requires serious thought. The recent reiteration of the old statement that there should be a separate hospital for negroes here leads one to study the question anew. Aside from the advantages that would accrue from such a hospital maintaining a training school for colored nurses and providing clinical opportunities for colored physicians, the advance in civic-mindedness of the colored population in general is also worth considering, if and when such a hospital is economically feasible. Let us look into the question of feasibility.

If it be true that sufficient accommodation for colored patients is actually lacking, the

remedy lies in either enlarging the colored quarters in the existing hospitals, or in building a new and separate hospital for negroes. Suppose we analyze this latter proposition.

Wilmington and its environs has a population of 125,000, of which 11% is colored, or 13,750 negroes. In 1931 the Committee on the Costs of Medical Care discovered that, in a given year, 6% of the population will require and receive hospitalization. This makes 825 as the annual average number of negroes here who would need hospitalization. Yet in 1937 the four local hospitals admitted 1139 colored patients, 90% of whom were charity, and it seems safe to say that fully half of the remainder (the 10% who paid at least something) were compensation cases paid for by the employer. The two points here are that (1) Wilmington's negro population already enjoys one-third more hospitalization than the national average; and (2) any scheme for a separate institution must be regarded a 90-93% charity.

Furthermore, the new plant would have to be fairly large, even at the beginning. In 1937 the 1139 negroes received 17,163 patient days, or an average of 15 days, which means that a bed could be rotated 24 times a year, if the load was a fairly constant one. Accordingly, if such regular rotation prevailed last year, the negroes occupied 48 beds all the time, but due to the variations of the load the peak was around 60. On a standard basis, this peak of 60 should be a constant average of 57, or 11% of Wilmington's present 524 beds. Furthermore, 102 new beds are almost ready for occupancy, giving Wilmington 626 beds at last bringing this city of vast wealth up to the American standard of 5 beds per 1,000 of population, or 625 for the city. Of this new capacity of 626 beds, the colored proportion of 11% is 69 beds, so our present estimate of a normal demand for 60 colored beds seems quite reasonable. Now, the American Hospital Association considers a hospital "full" when 80% of its beds are occupied, as a safe margin of empty beds must be maintained to take care of emergencies; in other words, it would be economic suicide to build a negro hospital of less than 75 beds. As a matter of

fact, a separate hospital would stimulate their desire for hospitalization, especially for obstetrics, and in next to no time a full 100 beds would be required.

The cost of building a modern hospital varies greatly according to city, style, completeness, etc., but a fair national average figure is \$4,000 per bed, for grounds, building and equipment. This makes the Wilmington proposal cost a minimum of \$300,000 to erect. Assuming that the institution could be operated for 25% less than the other hospitals here, because it would have no white patients, the cost per bed per day would be \$4.50; and assuming that the 60 beds (80% of the total) were constantly occupied, the operating cost per year, for in-patients only, would be \$97,200, with receipts from patients about \$9,700, leaving a deficit here of \$87,500. Assuming further that the out-patient costs would parallel the in-patient costs at 75% of the costs in the present hospitals, this department would cost \$17,700, with receipts of about \$1,700, leaving a deficit here of \$16,000, or a total operating deficit of \$103,500 per year.

In 1937 the present hospitals spent over \$104,000 in maintaining 48 colored beds, and for 60 beds the cost would have been \$130,000. Add for the colored out-patients \$24,000, and the cost is \$154,000 per year, assuming that the additional 12 beds could be housed, and even then there is no such thing as 15 emergency beds available. Accordingly, it appears that by building such a separate negro hospital as has been outlined here a theoretical saving of approximately \$50,000 a year might be effected. It is only a matter of time before such an institution will be imperatively needed, as the present hospitals must soon enlarge their colored facilities or else give up the attempt to give them adequate facilities.

The situation appears to us as we have stated, but since there are no one-hundred-percenters in any field of human endeavor, we may be wrong. As a check, figures should be obtained from other sources. Exclusively for colored patients, there is in Baltimore the Provident Hospital of 124 beds, and in Washington the Freedmen's Hospital of 322 beds, and in Philadelphia the Frederick Douglass Memorial Hospital of 56 beds. Complete data as to census figures, costs of building, costs of operating, staff arrangements,

etc., should be obtained from these three colored hospitals of varying sizes before any decision is made as to the program for Wilmington. Then it may be found that our analysis is essentially correct, and that the main problem to find a suitable site and the necessary \$300,000 with which to begin building.

BOOK REVIEWS

(Concluded from Page 144)

Other notable reports of outright rejection of products are those on Causalin (Causyth), an unsafe and dangerous preparation proposed for use in arthritis; Glutamic Acid Hydrochloride-Caleo, proposed as a conveyor of hydrochloride acid, with unsubstantiated claims of clinical effectiveness; Larodon "Roche," proposed as a substitute for other well established analgesic and antipyretic drugs and marketed with exaggerated and unwarranted claims.

Two reports on Sulfanilamide appear, a nomenclature and status report together with reprints of THE JOURNAL editorials giving the warnings which, if obeyed, would have avoided the series of deaths which resulted from the marketing of the ill-fated Elixir of Sulfanilamide-Massengill.

At the end of this volume appears an eulogy of George Henry Simmons whose death deprived the Council on Pharmacy and Chemistry of its founder and American medicine of a worthy and faithful servant.

Pneumonia and Serum Therapy. By Frederick T. Lord, M. D., Clinical Professor of Medicine, Emeritus, Harvard Medical School, and Roderick Heffron, M. D. Field Director, Pneumonia Study and Service, Massachusetts Department of Public Health. Pp. 148. Price, \$1.00. New York: Commonwealth Fund, 1938.

An extremely well written, concisely phrased book. Marginal paragraphic headings throughout the book. Tables and figures simplified and easily understood. Written in a style that eliminates excess phraseology. Conclusions given clearly and concretely. An excellent book of its type and well worth while including in any library. In view of the great publicity given to pneumonia serum during the past winter this book could have been published at no more opportune time. It may do much to overcome the impression that the lay press have given — that all pneumonia cases given serum early recover and that all pneumonia deaths are due to the refusal of the medical profession to avail itself of the free serum.



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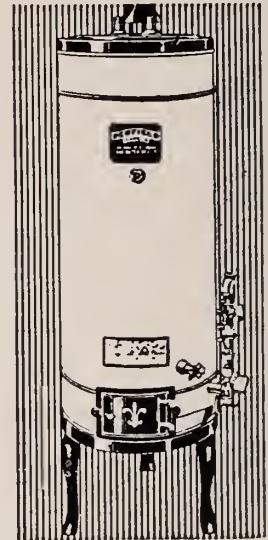
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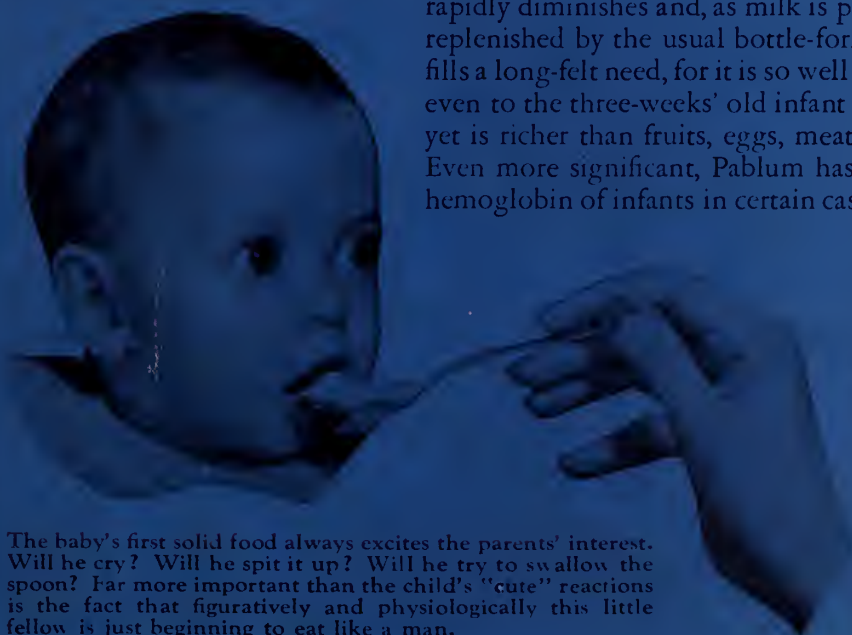
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BASIC OPERATIONS IN COMMERCIAL CANNING PROCEDURES

V. HEAT PROCESSING THE SEALED CONTAINER

● Previously, we have described how raw food material is sealed in the tin container after proper preparatory treatment. After sealing, the next important step in commercial canning is the heat process, or "process" as it is called in the industry.

Essentially, the processing operation involves exposure of the sealed container to hot or boiling water, or to steam under pressure, for the correct period of time. The purpose of the process is to destroy pathogenic or spoilage organisms which may be present on raw food material; the seal on the can then prevents re-infection of the foods by such organisms. Thus, the sealing and processing operations combine to insure a sound, wholesome canned product.

It is not possible here to review all factors which must be considered in the establishment of an adequate heat process for any specific product. Such factors have been briefly discussed in recent publications (1, 2). It must suffice to state that, in general, commercial processing operations are divided into two general types, depending upon the acidity of the food being canned.

The "acid" foods—including the common fruits and certain vegetables or vegetable products whose pH values fall below 4.5—are quite easily heat processed. With such foods it is only necessary to heat the sealed container long enough to permit the attainment of a definite temperature

in the center of the can (usually 200°F. or slightly less). In fact, some acid products may be processed by filling sufficiently hot, sealing and inverting the cans, and cooling without further process.

The "non-acid" foods—such as meat, sea foods, milk and most of the common vegetables—require temperatures above that of boiling water for adequate heat processing. Such foods are processed under steam pressure in a closed "retort", usually at a temperature of 240°F. Years of research have made possible the issuance for the guidance of modern canners of a bulletin listing recommended process schedules for the non-acid products (3).

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(1) 1938 Food Research 3, 13.

(2) 1937. J. Amer. Med. Assn. 109, 1046.

(3) 1937. Natl. Canners Assn. Bull. 26L, 3rd ed.

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TUMORS OF THE MOUTH AND JAWS*

ROBERT H. IVY, M. D., D. D. S.**
Philadelphia, Pa.

Most of the new growths that form in various parts of the body may be found about the mouth and jaws, and in addition there are certain tumors and cysts that are peculiar to this region. I have the impression that the medical profession as a whole is not as familiar as it should be with many of these growths, and is inclined to regard them as being chiefly the concern of the dentist. I believe that the physician should have a better understanding of conditions of the mouth and jaws than is many times the case, in order that the patient may not be unduly alarmed by diagnosis of a benign growth as a malignant one, or, on the other hand, be suffering from a carcinoma or a sarcoma unrecognized until too late for treatment to be effective.

In the brief time at my disposal I can only give a sketchy outline of the more important growths occurring in this region. There is a group of conditions which resemble one another clinically, causing a slow, often painless enlargement of the upper or the lower jaw, but which differ radically in that some are not true tumors, some are benign, some malignant, and therefore demand wide variation in treatment. From this it is evident that correct diagnosis is of prime importance, if we are to avoid performance of a radical mutilating operation on the jaw for a growth that is curable by simple enucleation, or if we wish to escape temporizing with a malignant lesion which should have radical treatment at the earliest possible moment.

The principal new growths within the jaw bones which may resemble one another clinically

and thus present difficulties in differential diagnosis are:

1. Dento-cystic tumors
 - (a) Adamantinoma or ameloblastoma
 - (b) Dentigerous cyst
 - (c) Dentoperiosteal or dental root cyst.
2. Localized osteitis fibrosa.
3. Benign giant cell tumor.
4. Sarcoma.
5. Metastatic growths.
6. Traumatic or hemorrhagic cysts.

In typical cases all of these are characterized by practically painless, slowly growing expanding swelling of the bone, with thinning of the cortical plate and later breaking through the cortical plate and bulging into the soft tissues.

1. DENTOCYSTIC TUMORS.

- (a) *Adamantinoma* or *ameloblastoma*.

Origin. Aberrant growth of epithelial cells which are prototypes of those forming the inner layer of the enamel organ (ameloblasts).

Pathologic anatomy. Cavity in bone divided into numerous compartments by fibrous or bony septa. Some of the spaces are cystic, containing fluid, others are filled with solid tissue. Epithelium is cuboid or columnar, and arranged in strands or alveoli, surrounding a stellate reticulum.

Age of occurrence. Any age.

X-ray shows cavity in bone divided by fine trabeculae into compartments varying in size.

Clinical characteristics. Painless expansion of bone, usually in molar region of mandible, slowly increasing in size. There may be an opening into mouth from cystic cavity.

Prognosis. Recurrence common unless radical operation is done.

Treatment. For small growths, shelling out and curettage may suffice. For larger ones, complete resection of portion of mandible involved is indicated.

*Read before the Medical Society of Delaware, Wilmington, October 13, 1937.

**Professor of Maxillo-Facial Surgery, University of Pennsylvania.

(b) *Dentigerous cyst.*

Origin. Cyst lining formed by epithelium of outer layer of enamel organ.

Pathologic anatomy. Single cavity in bone. Membrane is lined with layers of squamous epithelium. Cavity contains thin fluid and the crown of an unerupted tooth projects into the cyst from the bony wall.

Age. Occurs at any age, but particularly about time of eruption of permanent teeth.

X-ray shows clear area of absence of bone with well-defined margins, containing an unerupted tooth.

From the foregoing, it is evident that the term dentigerous should not be applied to all cysts of dental origin, as is frequently noticed in the literature, but only to those having the crown of a tooth in the cavity. In the upper jaw a dentigerous cyst may expand and occupy the space normally belonging to the maxillary sinus, pushing up the floor of the latter, but rarely breaking into it spontaneously.

Clinical characteristics. Slowly increasing expansion of a part of the bone, which later may become very thin and give a parchment or celluloid feeling. Absence of a tooth from the series in the region of the swelling is significant.

Prognosis. Readily cured by suitable conservative operation.

Treatment. Operation through flap of gum. Complete removal of cyst, with its capsule, together with unerupted tooth.

(c) *Dental root cyst or dentopcriosteal cyst.*

Origin. Abnormal growth of epithelial cell-rests normally present in dental periosteum, derived originally from outer epithelial layer of enamel organ (paradental epithelial cell-rests of Malassez).

Pathologic anatomy. Cavity in bone about apex of permanent tooth whose pulp has been devitalized. Cavity lined with multiple layers of squamous epithelium and contains fluid with cholesterol crystals. Cysts vary in size from a pea to a hen's egg. In the maxilla, like the dentigerous cyst, the dental root cyst may encroach on the maxillary sinus or the nasal fossa, but rarely ruptures into these cavities. It may push up the floor of the maxillary sinus until the latter is entirely obliterated. By extension, the cyst may grad-

ually involve the roots of adjacent healthy teeth, causing secondary pulp devitalization. These cysts usually occur in adults.

The *x-ray* shows a radiolucent area in the bone with clearly defined margins, in connection with the apex of a pulpless tooth or in a part of the bone from which such a tooth has been lost.

Clinical characteristics. Presence of a pulpless tooth or a history of previous removal of such a tooth. Slowly increasing painless expansion of the bone. In cases of doubt, needle-puncture under aseptic conditions will establish the diagnosis. In edentulous regions of the upper jaw, it may be difficult to differentiate in the x-ray film the wall of a cyst from the floor of the maxillary sinus. Needle puncture is valuable here.

Prognosis. Readily cured by suitable operation.

Treatment. Flap made in gum, removal of offending tooth, if present, epithelial lining shelled out in most cases.

2. LOCALIZED OSTEITIS FIBROSA.

Osteitis fibrosa is a chronic disease of bone first described by von Recklinghausen in 1891. Until recently the cause was obscure. It is now recognized that there are two distinct forms: the generalized form, always associated with hyperparathyroidism and an excessive amount of blood serum calcium; and the localized osteitis fibrosa which may affect one or more bone areas but in which no parathyroid overactivity or increase in blood calcium can be demonstrated. The bone changes in all forms are essentially the same, trauma being often responsible for the localized form. In the jaws, the mandible is more frequently involved than the maxilla.

The disease usually occurs in children and young adults and is characterized by the appearance in the shafts of the long bones and occasionally in other bones of circumscribed areas where, instead of true bone there is osteoid tissue without calcification of the trabeculae. The area is usually poorly supplied with vessels and often has cysts in it. It is usually sharply circumscribed and often progresses painlessly and slowly until the bone is so weakened that a pathological fracture following slight trauma first calls attention to it. Sometimes there are giant cells found in relation to the cysts.

Symptoms and diagnosis. There is a painless localized expansion of the bone, slowly increasing in size over a period of months, which in the jaw cannot be distinguished clinically from the adamantinoma or any slowly growing tumor. Even by x-ray examination it is frequently difficult to differentiate, since the roentgenogram shows a moth-eaten or honey-combed condition of the bone, with well-defined margins, and areas with larger spaces. The presence of several areas of this kind in the bone would make the diagnosis of osteitis fibrosa more probable. One should make sure that the jaw lesions are not part of the generalized form by thorough search for areas in other bones of the body and by examination for parathyroid enlargement or blood calcium increase. In the absence of these latter, it may be impossible to make a diagnosis of osteitis fibrosa, without pathological examination of tissues removed at operation.

Treatment. In the form localized to the jaw this is mainly surgical, and consists in removal of the diseased bone area. The extent of the operation to be performed will depend on the amount of involvement. In the case of small areas, curettement or shelling out of the diseased area will suffice, whereas in extensive cases, resection in continuity of the mandible may be necessary. We have recently performed the latter operation in three cases of extensive osteitis fibrosa, followed by restoration with bone graft. In the generalized form of osteitis fibrosa, removal of a parathyroid tumor has been successful in arresting the further development of the disease.

3. BENIGN GIANT CELL TUMOR.

These growths were formerly called giant cell sarcomas, and, regarded as malignant, occasioned radical and mutilating operations and unnecessary sacrifice of tissue. It is now known that these growths are not malignant, and that they usually require only local removal. Some pathologists regard them as a manifestation of osteitis fibrosa.

The benign giant cell tumor involves the lower jaw more frequently than the upper, causing a slow painless expansion of the inner and outer cortical plates. If the cortical plate or the alveolar border becomes perforated by the tumor, the mass under the mucous membrane of the mouth will have a characteristic

purplish color. Otherwise, absolute diagnosis may not be possible before operation. On incision, these growths have a dark red color, as contrasted with the true sarcoma, whose tissue is usually a pale gray. Giant cell growths generally respond to enucleation of the tumor mass without extensive encroachment on the surrounding healthy bone. In cases seen late, with perforation of the cortical plates, resection of the involved portion of the jaw is sometimes necessary.

Sarcoma.

Sarcoma, the malignant tumor of mesoblastic tissue may be found in the jaws. When involving the interior of the bone, it causes a slow, painless expansion, later increasing more rapidly. No age is exempt from the disease. In the upper jaw, the maxillary sinus may be involved, with later invasion of the nasal fossa and other sinuses. The cells composing the sarcoma may vary greatly, and the histological picture will often give some clue as to their virulence. Rapid growth is indicated by numerous mitotic figures. Metastases usually occur through the blood stream, and are most frequently found in the lungs. Before treatment of a sarcoma is undertaken, roentgen ray examination of the chest should always be made, because if lung metastases exist, treatment of the local growth may be useless.

The x-ray is sometimes useful in distinguishing sarcoma of the jaw from cysts, giant cell tumor, osteitis fibrosa, etc. In sarcoma the outlines of the growth as seen in the x-ray film are usually less well defined and more irregular than in the other cases.

Treatment. This should be more radical than in any other tumor of the jaws, when operable at all. Surgery can be advantageously preceded and followed by radium or x-ray therapy.

5. METASTATIC GROWTHS.

Carcinoma of the jaw bones is usually a direct extension from a primary growth of the oral mucous membrane. Occasionally, it may occur as a true metastasis from carcinoma elsewhere. In the presence of an unexplained swelling of the jaw bearing the characteristics of a tumor, the possibility of a metastatic growth should be borne in mind.

6. TRAUMATIC OR HEMORRHAGIC CYSTS.

Cavities may form in the mandible, comparable to cysts formed in the long bones as the result of trauma. All cases described have been in adolescents, due to intramedullary hemorrhage following trauma insufficient to cause fracture. The intraosseous hemorrhage causes absorption of the bony trabeculae of the spongiosa producing a cavity. Diagnosis may be difficult. It depends on a history of trauma in young patients, insufficient to cause fracture, with later development of dull pain, and sometimes a swelling in the body of the mandible; x-ray findings of a well-defined, somewhat irregular cavity in the bone along the course of the inferior dental canal, with no apparent connection with the roots of the teeth, the pulps of the latter being vital. Differentiation from dentoperiosteal cyst or dentigerous cyst may be impossible before operation. The most striking thing on opening into the cavity at operation is the apparent absence of any lining membrane, which is always present in cysts of dental origin. Treatment consists in opening into the bone cavity after exposure through a flap of gum and evacuation of the fluid contents. The bone cavity is preferably kept open and allowed to heal by granulation.

Nasopalatine cysts.

Another form of cyst is found in the upper jaw which is not of dental origin, but may be mistaken for a dental root cyst. Cysts developing in the interincisive region of the maxilla have been described by Meyer, Schroff, Thoma, Goodman and others, and should be of special interest to the rhinologist owing to their intimate relationship to the floor of the nose. They probably arise from epithelial remnants of the nasopalatine duct. When large, such a cyst may present a swelling in the region of the interincisive papilla in the hard palate, but may be detected only by x-ray examination, which shows a well-defined radiolucent area above and between the apices of the maxillary central incisors. These areas, when small, have commonly been regarded as simple enlargements of the incisive fossa. Sometimes secondary infection occurs, with discharge of pus and mucoid material through an opening in the gum, usually at the site of the interincisive papilla. A cyst of this type

may be differentiated from a dental root cyst connected with a central incisor, by the fact that the pulps of these teeth may be vital, and on making x-ray films in different positions the relationship of the cyst shadow to the apices of the teeth will vary.

Treatment. The cyst is usually best approached by laying back a flap of gum on the palatal aspect of the central incisors. Sufficient bone is removed with chisel and rongeur forceps to expose the cyst cavity, and if possible the epithelial lining is then shelled out. This lining sometimes extends in a narrow channel high up toward the nose, surrounding the nerve and blood vessels in the canal, consequently it may be very difficult to remove completely. To insure its destruction the operation may be followed by the application of Cutler's sclerosing solution.

Calcified dental anomalies.

In addition to the cystic and soft tissue growths originating in the dental epithelium, calcified masses of dental tissue, usually called odontomas, are not infrequent. In the commonest form, the calcified tissues are irregularly intermingled and have no definite shape. Here we have a disordered conglomeration of enamel, dentine and cementum. The mass may be unerupted or erupted. These growths may be discovered at any age, and are frequently not recognized until supervening infection causes osteomyelitis, when the hard masses are often mistaken for necrotic bone. They are found in either jaw, and generally in the molar region. In the upper jaw, such a mass may encroach on the space of the maxillary sinus. Frequently there is a normal unerupted tooth beneath the anomalous mass. An irregular swelling of the bone that has existed for a long period and has practically not changed in size, in the absence of a tooth, will suggest a calcified dental anomaly. The radiograph will always reveal the nature of the trouble. If a fistula is present and a probe is passed, the hard dense character of the tissue is felt to be quite distinct from bone.

Treatment. If acute symptoms are present, with swelling, redness and edema of the tissues of the face, and suppuration from the bone, early treatment should consist of incision and drainage. After acute symptoms have subsided, the growth should be removed, usually

from within the mouth. It may be necessary to turn back the overlying gum and cut away some of the bone covering it.

Torus palatinus.

This is an exostosis in the region of the median palatine suture of the maxilla, presenting an oval, usually smooth but sometimes nodular hard swelling in the roof of the mouth. To the uninitiated, this may be mistaken for a sarcoma or other malignant tumor. The torus palatinus is found normally as a developmental condition in a considerable percentage of people. It undergoes no changes in size over a period of years and causes no pain. Most persons are unaware of the presence of the growth until attention is called to it by a physician or someone examining the mouth or throat. It demands surgical treatment only when the overlying soft tissues become irritated by rubbing or when the swelling interferes with the proper fitting of an artificial denture.

Osteitis deformans, or Paget's disease, sometimes affects the upper jaw. In the maxilla, a hard, smooth swelling covered by normal gum tissue is seen in the region of the molar and premolar teeth. As the disease progresses, the swelling may be seen externally. The x-ray usually reveals consolidation of the facial bones and sinuses, with a peculiar mottling and thickening of the cranial bones. The etiology and cure are unknown, the chief interest of the disease here being its differentiation from other lesions more amenable to treatment.

Fibrous osteoma of the jaws.

We occasionally see a localized bony hyperplasia, usually in the upper jaw but sometimes in the lower, which presents a very slowly progressive hard smooth bulging of the bone, beginning in the region of the alveolar process. It is nearly always unilateral, and sometimes causes a visible external swelling. No pain is experienced. This condition has been recently well described by Phemister and Grinson in *Annals of Surgery*, 1937: 105, 564. Radiographically, the bone is seen to be homogeneous and of moderate density, sometimes in the upper jaw encroaching in the maxillary sinus. The bone is not hard, but can be pared easily with a knife or chisel. Our practice in such cases has been not to attempt to remove

all of the overgrowth, but to turn back a flap of the overlying gum and pare off the excess with a knife or chisel to restore the normal contour. So far, we have not had occasion to repeat the procedure on account of recurrence.

This discussion has covered a rather wide territory, yet of necessity many conditions that could have been mentioned have been omitted. It is hoped that what has been said will stimulate the interest of the physician in a somewhat neglected field. (Lantern slide demonstration.)

DISCUSSION

DR. DOUGLAS M. GAY (Wilmington): There is no part of the human body where there is a greater variety of tumors in the smaller areas than there are in the oral cavity. As we have seen from this very comprehensive description, there are tumors that concern the surgeon, the roentgenologist, and the pathologist, and even the neurosurgeon.

I have a question regarding these tumors that I would like to ask. Dr. Ivy described the giant cell tumor of the bone. I would like to ask him what relation there is, if any, between the giant cell tumor of the bone and the giant cell epulis. Both tumors are microscopically very similar.

DR. JOHN F. HIXES (Wilmington): I think we heard an excellent review of this subject of the jawbones. It is very puzzling to most people who do not see a great many of them.

I should like to call attention to one other tumor occurring in the palate which might be taken for the torus palatinus that Dr. Ivy described, and that is the mixed tumor of salivary gland origin which is sometimes found in the palate, presumably arising from the minor salivary glands that lie in the mucous membrane of the mouth. That is a smooth, relatively elastic tumor, usually covered by intact mucous membrane. It does continue to grow, and it will produce destruction of the surrounding bones by pressure, although the pure picture, of course, is not especially invasive. Its location, which is frequently near the middle of the palate, is such that it could be mistaken for torus palatinus on superficial inspection.

DR. J. PAUL WINTHROP (Wilmington): I do not think it would be appropriate for a

neophyte like me to discuss anything that Dr. Ivy might have said, but, being a representative of the dental profession here, I want to express my gratitude to him for coming down and acquainting the physicians of our city with some of the very common things that we find daily in dentistry.

DR. IVY: In regard to the benign giant cell tumors, I do not think there is any difference at all between the epulis, which appears to push it out on the surface, and the one that is found more on the interior of the bone. I think they are all the same, except for the location. Many regard them as a certain stage of osteitis fibrosa, and due to some calcium disturbance.

This particular growth is benign, and it does not require a radical operation. I have a slide showing a mixed tumor of the palate that I did not put on. Mixed tumors have been found in the hard and soft palate, sometimes under the mucous membrane of the cheek, in the lip, and sometimes in the tongue. They usually are associated with salivary glands. A mucous cyst of the middle of the hard palate might also look like the torus palatinus.

MALOCCLUSION*

GEORGE M. ANDERSON, D.D.S.**
Baltimore, Md.

The mental image I give you of malocclusion of the teeth as one of the problems in which the physician and the dentist have a mutual interest is more suggestive than exhaustive in scope. This approach is necessary because of the full program for the evening. It is in no sense because the subject is not worthy of more extensive consideration, for the functional and esthetic importance of sound, well-positioned teeth and the public's inquiries regarding malocclusion make it essential that practitioners of the health professions acquaint themselves with this phase of dental science, termed orthodontia, its aims, what the term in general implies and the benefits to be received therefrom.

Malocclusion has been defined as "any deviation from the normal relation of the teeth in the dental arch to each other and to the teeth in the opposing arch." For our purposes this definition will suffice.

Orthodontia has been defined as "that science which has for its object the prevention and correction of malocclusion of the teeth." This definition as it stands does not suffice. It is quite specific but too circumscribed for it speaks only of the teeth. There is no reference to the structures which support the teeth or which serve to make them useful. The roots of teeth are embedded in bone forming a considerable part of the human face. If teeth are far from their normal positions the bone in which their roots are embedded is certainly altered in form if not in quality or quantity. There are oral deformities such as cleft palate, for instance, in which we find malocclusion of the teeth a very important factor. Orthodontic treatment in these cases looks upon evenly aligned teeth as a secondary consideration and concerns itself primarily with overcoming developmental deficiencies in quantity, position and form of the associated hard and soft oral structures. While teeth are essential to the act of mastication they are no more so than the muscles which open and close the jaw. Malocclusion of the teeth interferes with the normal functioning of the muscles of mastication. High palatal vaults, as a result of change in bony form through the misdirection of occlusal forces from teeth in malposition, create nasal problems, and high palatal vaults caused by hereditary and environmental influences result in protrusion of erupting teeth. With this broader understanding, the simple quoted definition will suffice though it does not indicate the varied nature or complexity of the problems.

The field of orthodontia aims to "recognize, minimize and eliminate factors responsible for irregular teeth, to assist with mechanical devices in the development of the jaws and dental arches, to aid in establishing normal functional activity of the teeth, oral tissues and associated structures, and to improve facial appearance." It is a bio-mechanical division of health service. When growth

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and development of the area which Keith and Campion call "the masticating face" are inhibited we have to depend upon the mechanical appliances for needed stimulation, and the response to these appliances varies in degree according to the vital processes of the individual patient. In fact our mechanical appliances are only used to augment inherent possibilities within the structures themselves.

Benefits to be obtained from carefully planned and properly executed orthodontic treatment are numerous. The ability to incise and masticate food properly is one of the essential requirements to health, growth and comfortable living. Improvement in mastication, however, is not always appreciated by the child or parent, but to the dentist and physician, no more justifiable reason could exist for sustained efforts to prevent or correct malocclusion of the teeth. Laudable as this objective is, however, we are forced to recognize that mastication of food is not the only function of teeth or reason for their existence. They have an important place in speech, in respiration and materially affect one's appearance. The competitive life we lead makes it essential for success and happiness that we be able to make use of every natural advantage. Sound, well-positioned teeth are a natural asset. Since first impressions are often lasting, the restoration of natural character and beauty to the face marred by an unsightly alignment of the teeth is as important as any objective in orthodontic treatment, and the benefits much to be desired. Though protruding teeth are objectionable from the esthetic side, and readily call our attention to the need for treatment, they also act as a mechanical separator of the lips, aiding in establishing the habit of *mouth breathing*. The habit is easily established, under such circumstances, regardless of the size or clearness of the respiratory passages. The constant drying of the oral mucosa contributes an unfavorable situation for tissues that are normally and essentially moist. The elimination of the protrusion of the upper teeth sufficiently early in life will permit the lips to assume more natural form, position and function, and the habit of normal nasal breathing may be re-established. The benefits mentioned have all been general in character, and I have deliberately refrained from mentioning those strictly of a dental nature.

The ultimate goal, of course, is to make these benefits as available through prevention of the causes of malocclusion as through corrective efforts.

The general practitioner of dentistry and the orthodontic specialist can, through observation of patients in the developing years, offer simple suggestions and remedial measures towards the prevention of malocclusion. There are instances, of course, in which malocclusion of the teeth can be considered as only symptomatic of or a mere incident in a deficiency in individual growth and development. These are closely associated with inhibited growth processes of the entire body, affecting also the size and form of the jaw, over which we can have no control. Those etiological conditions, however, require too lengthy a discussion, so that our efforts will be towards more obvious causes over which we may exert a more direct control with immediate effect. Most of these are to be found within the oral cavity, or are associated with pressure (thumb and finger habits). It seems, therefore, not unreasonable to expect that certain of these causes may be prevented and others recognized and eliminated before too much damage is done. For instance, in the Journal of the American Dental Association for 1932, Dr. Brandhorst of St. Louis, gives an interesting chart of malocclusion with attributable and what he terms "controllable" etiology. The premature loss of teeth accounted for 37%, and the prolonged retention of deciduous teeth for 19%. Two hundred cases from our own practice, selected in direct sequence as to application for treatment, were remarkably close to his figures. Approximately 50% were actually a result of, or aggravated in severity by the premature loss of teeth or the prolonged retention of deciduous teeth. Where Dr. Brandhorst found 25% of his cases associated with abnormal habits (thumb, finger sucking, tongue biting, lip pressure, posture, sleeping and studying) our figures showed 15%.

The premature loss of deciduous or baby teeth is usually a result of neglect through parents feeling that these teeth will be supplanted with permanent ones, so that retention until normal exfoliation is of little importance. It is a very bad mistake. The presence of these teeth is not only important for

the mastication of food, but they maintain space for their successors. It is important that they be of good form and position and kept so. The beginning of tooth decay, as well as of malocclusion, is insignificant and often necessary care is delayed because the need for it is not appreciated. All deciduous teeth should be examined by three years of age and each six months thereafter, and even the smallest break in the enamel filled.

The first permanent tooth erupts at from six to eight years of age, it is commonly known as the six-year molar. It is the largest and most useful of all the teeth. It is the basis of our most accepted classification of malocclusion, and has been called the keystone of the whole dental arch. It is astonishing how many parents mistake this tooth for one of the deciduous or baby set. They are often consequently neglected until pain or discomfort forces attention. To lose one or more of them in early life, by ten or eleven, for example, is an absolute assurance, unless consideration is given to the consequences, that malocclusion of the remaining teeth, if not already in existence, will be so within a two or three-year period as the forces of occlusion are misdirected. Teeth have a drifting tendency when adjoining ones are missing. If a deciduous or baby tooth is extracted, the adjoining teeth should be maintained in their respective normal positions by some simple appliance until its permanent successor erupts. If it is a permanent tooth that is lost, the space should be closed by drawing the adjoining teeth together, maintaining satisfactory occlusion, or if this is not possible, some sort of artificial replacement to prevent the tipping and drifting of the adjoining teeth should be used.

The prolonged retention of the deciduous or baby teeth beyond their normal time for exfoliation often results in the displacement of their erupting permanent successors. The deciduous incisor teeth usually are lost from six to eight years of age, and retention beyond that period should occasion investigation as to the cause. It is in this region that prolonged retention of the deciduous teeth does the most harm, for the rapidity of eruption of the permanent successors has nothing whatsoever to do with the rapidity of decalcification of their predecessors. One can happen, and frequently does, while the other is dormant.

If a permanent tooth erupts out of line and its predecessor is still present the only course to pursue is to promptly extract the deciduous tooth.

Never, however, extract an *adjoining* deciduous tooth in order to give space for a displaced permanent tooth. Each deciduous tooth has a permanent successor and while the displaced permanent tooth may be temporarily benefited, it will soon be seen that the shifting of the erupting permanent teeth closes the space needed for the full complement of teeth and a more complex malocclusion occurs than previously existed.

Pressure habits such as those of finger and thumb sucking, lip and tongue biting, are, we believe, definite etiological factors in malocclusions. Children develop these habits very early, especially during the teething period, or imitate other members of the family until the habit takes such a hold it is well nigh impossible to dislodge. Nevertheless, a determined effort should be made to overcome the handicap. Not all habits induce the displacement of teeth, nor is every malocclusion, which is ear-marked by the parent as the result of a habit, actually so, or possibly even aggravated by it. We do know, however, that many unnecessary and unsightly malocclusions have slowly developed as a result of *pressure* from thumb, finger and tongue. Pressure is the distinguishing point as to whether habits are a cause of malocclusion of the teeth, and there is a characteristic appearance to the displacement of the teeth through directed pressure which catalogues the cause beyond dispute. The tongue placed between the teeth will usually protrude them and cause the upper and lower incisor teeth to fail to normally overlap. Such a condition is called an "open bite." The upper and lower molars and bicuspids occlude but the upper and lower incisor teeth are not infrequently a quarter of an inch apart. The incisive action is completely lost. The *lower lip* placed between the upper and lower incisor teeth will invariably protrude the upper incisors, making them overlap the lower incisors far more than is normal, frequently to such a distance that the latter are not seen when the teeth are closed. Normally, with the teeth closed, the upper incisor teeth should overlap the lowers about one-third of the length of the crowns of the

lower incisors. The *thumb* placed between the upper and lower teeth will nearly always cause a slight protrusion of the teeth on the side which the thumb enters and a slight open bite will result. The lower incisors often are pushed with the knuckle of the thumb towards the tongue and overlap. If the thumb is placed in the middle of the mouth there is apt to be a considerable narrowing of the dental arch with a pronounced protrusion of the upper incisor teeth. The answer as to why we see so many children sucking their fingers and thumbs and not having these characteristic appearances is that it depends upon the *degree of pressure* exerted. The mere placing of the finger in the mouth will not necessarily displace the teeth. The etiologic factor is *pressure*, with the placing of the thumb or finger in the mouth as but evidence of the act. The pressure gives the satisfaction and increases as the child enjoys the act. These habits are difficult to break. Medicaments, thumb guards, elbow corsets have their place, but an ingrained habit will not be so easily overcome, and resort must be made to a cemented appliance upon the teeth designed to interfere with the pressure without being painful.

The physician can materially aid in our efforts to diminish malocclusion of the teeth, for parents will seldom hesitate to accept his suggestions for the welfare of their child. It is entirely within the physician's province and a part of his responsibility to offer suggestions to a parent towards the prevention and elimination of common developmental faults affecting the dental apparatus of a very young child. A dentist is fortunate to see a child as a patient prior to four years of age. In many instances, it is six years, or whenever the first cavity and toothache occurs. By that time the damage is done; extensive and difficult corrective work is the penalty. If the physicians of Wilmington see to it that each child in his practice is started by three years of age to visit the dentist, caries and malocclusion of the teeth will be better controlled, with reparative and corrective work held to a minimum. Our reason for making this suggestion is not selfish. It is justified by facts. By the age of three years all the deciduous teeth are erupted and have been in occlusion for nearly at least a year. If they are structurally weak,

decay will be in evidence. The size and form of the deciduous teeth will not permit of much decay without involving the pulp of the tooth. Enamel of the teeth is not a self-repairing structure, and if poorly formed remains so. Subjected to the fluids of the mouth and none too sound oral hygiene, it soon breaks down and decay may become pronounced even by three years of age. Early recognition and attention will not solve such a problem, but it will aid to a large extent in simplifying the many difficulties of later years. For if a child is started to the dentist at three, by the time the permanent teeth are erupting the habit of going has been established and incipient decay in them can be more easily and satisfactorily managed.

Before closing, I should like to answer a question regarding the best time to initiate treatment of malocclusion.

Whether better results are obtainable if orthodontic treatment be instituted early (5-7) or delayed until 12-14 does not to me seem to be of great importance. Far too many malocclusions have been treated satisfactorily and unsatisfactorily at all ages to make one too enthusiastic about endorsing any specific period according to years as being apt to give the best results. Many malocclusions, evident at seven, may have partially or completely disappeared a year or so later, for it is well known that children frequently outgrow functional and structural disorders. But I have always questioned the use of the word "malocclusion" under such circumstances. The occlusal relationships temporarily established are mere alterations in tooth position created by conditions existing for the moment. Relieved of their influence, the teeth immediately seek normal positions in the line of occlusion. That is a natural thing and is in conformity with disharmonies and their adjustment in other structures of the body. The mere fact, however, that by 12-14 all of the permanent teeth except the third molars or wisdom teeth are supposed to be erupted and their occlusal positions, right or wrong, established, seems to indicate that treatment prior to these years might have prevented or simplified much that in later years needed correction.

When, however, it is decided to defer treatment, it is wise to have plaster casts and radiographs made of the teeth and dental arches,

repeating the procedure each six months. There soon will exist records which will prove beyond dispute whether or not the changes which are occurring are favorable or unfavorable. The radiographic examination will inform us of incipient malocclusion for much displacement of the teeth occurs prior to eruption. Many malocclusions are in evidence long before the teeth are in the mouth and there is no justification for waiting until a mass of irregular teeth have emphasized the fact. Even at that we need be in no great hurry to institute corrective measures for we are not dealing with pathological conditions requiring prompt attention, but with changes slow to exert themselves and make evident their ill effects. There is seldom an emergency in the study of a malocclusion which would indicate that we must hurry our diagnosis to the point of insecurity. But since structural bone deformities are, as age progresses, increasingly hard to change, treatment will undoubtedly be more successful the sooner it is undertaken after the inception of the abnormality.

MEDICO-DENTAL RELATIONSHIPS*

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It is with the deepest appreciation and gratitude that I welcome this opportunity to assist in a very small way the promotion of an even closer cooperative bond between the medical and the dental professions. The possibilities in this opportunity are so great, and the field so extensive, that I must beg your utmost indulgence towards my humble attempts to review from the point of view of the dentist some of the pertinent problems of mutual interest to the two professions.

Intelligent consideration of the relationship between medical and dental problems, the individual and cooperative efforts of the physician and the dentist to apply scientific principles in effecting solutions to these problems, and the ultimate objectives and results of such cooperative study and application must be predicated upon these facts: that both medicine and dentistry fundamentally deal with the same materials, apply the same principles, and possess a common objective. That is to say, both of these professions attempt to com-

bat and prevent disease by determining the nature of pathology, seeking and removing the cause, and repairing the damage and restoring form and function. Although this paper presents no brief for the consideration of dentistry as a specialty of medicine, nor for the absorption of dentistry by medicine, it does attempt to emphasize the fact that, regardless of technical differences of training and application in these two professions, their nature and background must, of necessity, remain identical.

That such problems exist is inherent in the very nature of dental science, which, although differing in its manner of approach and practice, like other specialties of medicine is fundamentally a health service dealing with abnormal physiology in the interests of the public good.

That the problems of mutual interest to the physician and the dentist are in reality inseparable phases of the same science, the definite relegation of which to one profession or to the other is fundamentally impossible, can readily be determined by a consideration of the scope of the practice and profession of dentistry. Dentistry is a special branch of the healing science which considers, treats, and attempts to correct pathology of the oral cavity, the dental structures, and directly associated tissues. That this area includes a great deal more than the teeth and gingival mucous membranes is evident when the oral cavity is considered as an integral unit of the human organism. The functions of the oral cavity are many, each important to the physician as well as to the dentist. As a part of the alimentary and respiratory systems it acts as the orifice of the gastro-intestinal and respiratory tracts. All of the food for systemic consumption enters the body through the mouth, where the dental and salivary apparatus prepares it for the progressive digestive processes of the alimentary system. The degree of efficiency of the oral cavity as the organ of deglutition, mastication, and preliminary digestion of food has, then, quite naturally a profound effect upon the entire system. Then, consider the oral cavity as an integral part of the respiratory tract, in which capacity it plays an important role as an accessory air passage, as well as a factor of tremen-

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dous proportions in the production of articulated speech and vocal expression. Thus, the oral cavity, as a functional organic unit, is undoubtedly of as great interest to the physician in his consideration of the human organism as it is to the dentist, whose particular locus operandi it happens to be.

In order to further our thesis, the oral cavity must be considered not only as a functional unit, but also as an atrium for and source of systemic sepsis and toxemia. It is unnecessary to discuss the admitted fact that the greater part of disease by contagion is contracted through the oral cavity by means of inhalation or ingestion. Thus oral hygiene, again within the special province of the dentist, is also of primary import to the physician. Furthermore, and perhaps of even greater significance, is the consideration of the mouth and dental structures as the exciting factors and contributing foci of systemic sepsis and toxemia. For the past twenty years the problem of oral focal infection has been presenting itself with ever increasing frequency. Cooperative study by physicians and dentists brought about the recognition and understanding of oral focal infection and the role it plays as an exciting and contributing factor in the production of local and systemic disease. Its diagnostic and therapeutic applications have become undeniably advantageous to the patient and his physician or dentist, and the consideration of oral focal infection cannot be omitted from the careful study of any form of systemic pathology. The regretful admission must be made, however, that the theory and practice of this phase of medical and dental health service has from time to time been so grossly exaggerated as to have become a fad. Such a fad carries great danger for a profession and its patients. This attitude happily has been disappearing during the past few years as a result of cooperative study and attention by medicine and dentistry: to the end that the wholesale sacrifice of healthy teeth is being constantly prevented, and the disturbing problem of non-vital teeth receives a wiser, more thoughtful consideration. This has been made possible by the increased standards of medical and dental education and the desire of the physician and the dentist to increase their knowledge of each other's problems; the attitudes of the practi-

tioners appear to be constantly converging upon the same path, reaching a more common level of understanding and cooperation.

The oral cavity becomes of even greater importance in our discussion when it is considered as a locus for the manifestation of local and systemic pathology. It is within this field that there is need for even closer medico-dental cooperative efforts. Caries, commonly termed mankind's most prevalent disease, formerly considered a purely local dental affliction, and more frequently treated entirely as such, is undoubtedly, as our research scientists have indicated, a complex problem of metabolic, nutritional, chemical, and possible endocrine disturbances, all being closely related to factors of heredity and environment, the exact nature of which are still far from being determined. The majority of all dental operations is the care of carious teeth, and yet the etiology of that caries is very probably some remote systemic disturbance, while the end result of that caries, if allowed to continue untreated, is devitalization and subsequent root infection of the tooth with possible serious systemic consequences. Therefore, the problem of caries alone, from the standpoint of public health, is one of equal importance to the physician and to the dentist. All other lesions of the oral cavity must be considered in an identical manner (contributing systemic source, local manifestations, and possible systemic sequelae), there being no line of demarcation between the realms of either medicine or dentistry.

It is a well established fact that systemic disease is often manifest in the tissues of the oral cavity, the study and recognition of which constitutes a major contribution to diagnostic symptomatology. In fact, the oral cavity may well be considered a valuable index of health, physical development, and metabolic efficiency.

The oral cavity considered from this angle has received but scant attention by the majority of practitioners. It is, however, already recognized as of great value and will attain an even greater importance as a result of cooperative study. Oral symptoms of systemic disease provide one of the most valuable aids to an early and accurate diagnosis. Oral lesions, changes in the oral mucosa, disintegration and suppuration of the periodontal tissues, and even changes in the qualities of the dental

structures themselves are often secondary manifestations and symptoms of a general systemic debility, lowered physical resistance from some remote cause, or obscure pathology. It is incumbent upon the dentist and physician to be qualified to recognize these conditions, not only as local pathological entities, but as oral manifestations of systemic disease. Recognition of such symptoms by the dentist are of the utmost value to the physician in making an early diagnosis and frequently make possible medical attention to a patient who otherwise would not see a physician until the condition had become more extensive. Although such oral lesions may be secondary in nature, they are inclined, if allowed to progress untreated, to become locally destructive processes as well. Thus, they can be adequately treated neither by the dentist nor by the physician, but only through a complete understanding and cooperation on the part of both. Therefore, it can readily be seen that both the dentist and the physician must have an adequate foundation based upon scientific facts in order to be of mutual assistance in giving the greatest possible benefits to the patient in such conditions.

It is my hope that this brief revue of the oral cavity has served to indicate the fact that the consideration of the oral cavity must be from the same point of view, whether made by the physician or by the dentist.

To continue with this outline of the scope of dentistry, let us briefly consider the operative routine of dental practice. The problems of the dentist are fundamentally those of the physician, inasmuch as they deal with local and systemic pathology, the elimination of infection, prosthetic and natural repair of lost or diseased tissue structures, and the improvement of general health. The approach to these problems, whether by the specialist or by the general practitioner, must be made through the familiar channels of observation and study, diagnosis and therapy.

Dentistry observes and studies the oral cavity from the points previously mentioned—as a functional unit of the human organism, the seat of local disease, and as an index of systemic health and development. The diagnosis of the conditions noted by such observation are based upon the findings of the study

in conjunction with cooperative medical and dental experience.

Dental therapy instituted as a consequence of proper study and diagnosis may be divided into five separate groups; namely: surgical, bio-mechanical, palliative, systemic, and preventative. The surgical therapy of dentistry consists of any and all instrumentation, from the preparation and filling of the smallest carious cavity to the plastic repair of maxillary injury. It includes the local treatment of periodontal and gingival lesions, the extraction of erupted, unerupted, and impacted teeth, under the general heading of exodontia, and intra-oral surgery for the management of cysts, tumors, deformities, extensive infections, and traumatic injuries. That there is and can be no other approach to oral surgery than that embodied in the broad principles of general surgery is evident when one considers that the smallest operation on a single tooth is of identical nature with a major surgical operation in that it embodies operative manipulation of a living tissue, part of an organic unit, with the same possibilities for infection, shock, trauma, and complications, and subject to the same conditions of repair and convalescence. The difference is only in the extent and degree of complexity of the problem, although it is possible that many, through personal experience, having undergone or attended the removal of a seriously impacted tooth or other oral surgical operation of an extensive nature, have considered the same well within the limits of the commonly termed "major operation."

The bio-mechanical phase of dental therapy, which is based upon biologic precepts of growth and development and treats of the restoration of mastication, maxillary relationships, symmetry, articulation, and aesthetics, has been fully covered and considered by Dr. Anderson. Nevertheless, permit me to point out again that this special phase of dentistry does not differ in its principles or application from the fundamentals of medical science or practice. In its treatment of conditions which affect not only the oral cavity, but also the nasal passages, ear, middle ear, diet, nutrition, metabolism, and even the nervous system, this special study is dealing with another problem of mutual interest and importance to both the dental and medical professions.

Palliative therapy is the oldest and least scientific form of dental science. Its purpose is the temporary alleviation of pain and sepsis, and the immediate relief of the more common oral lesions. Although its practice is an invaluable aid in the relief of suffering, it is in itself inadequate, being based more frequently upon proprietary therapy without thought or study, rather than upon the results of scientific consideration and investigation of the problem at hand. Systemic therapy, on the other hand, is an extension of palliative therapy, and includes all phases of dental and medical science. For its background it demands full biologic knowledge and complete medical cooperation in that it attempts to provide adequate, scientific treatment of conditions whose exact nature and source have been accurately determined, and due consideration given to their possible sequellae and systemic complications.

It is only by means of cooperative efforts on the part of the physician and the dentist that the successful practice of preventative health service will be completely possible in either of the two professions. Regardless of the great progress made by public health and immunization services, true preventative medicine or dentistry will not be available until the medical profession, the dental profession, and the general public are more fully cognizant and appreciative of each others' problems. That dental care has an important place in the prevention of disease and the improvement of health standards is undenied, and its assistance to the practice of preventative medicine is fully indicated in the increased health standards of schools and institutions where dentists and physicians are co-operating to the fullest degree.

Dentistry is in reality a field of specialized medical endeavor so extensive as to necessitate the distribution of its practice by means of other special groups. Although individual comprehension of its fundamental principles and basic knowledge is possible, the practice of each of the many phases of dental science must be relegated to those who by reason of special training, mental aptitude, and manual dexterity are best qualified to limit their field of endeavor to specialized effort, without losing sight of the broader principles of their profession as a whole, a situation comparable

to specialization in the field of medicine. The inseparability of the two professions is further demonstrated when consideration is made of the identical nature of the fundamental problems of each in the realm of study and research, the ideals of scientific application and practice, and the mutual desire for the ultimate benefits to the patient.

It is with this thought in mind that the suggestion is made that great assistance in the solution of the problems of mutual interest, the promotion of closer bonds of cooperation, and the clarification of progressive contributions to health service may be derived from corporate meetings such as this. The honest discussion of our mutual problems, whether they be scientific, economic or social, upon a basis of sincerity and mutual desire for accomplishment, will quickly be reflected in dental curricula modified to promote a broader understanding of medical science, medical curricula improved to further a better understanding of the problems of the dentist, a more complete consolidation of medical and dental knowledge and experience derived from investigation, observation, and practice, greater benefits to the patient, and dividends to the physician and the dentist in the form of wider horizons, closer cooperation between the professions, and social, economic, and professional advancement.

THE INTERRELATIONS OF DENTISTRY AND INTERNAL MEDICINE*

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It is not the purpose of this paper to discuss the many-sided subject of the relation of oral infection to systemic diseases, nor to allude to those systemic conditions and endocrine dysfunctions which *may* manifest themselves primarily in the mouth, the latter especially in childhood, and, therefore, should be promptly recognized by the dentist and in turn referred to a competent internist or pediatrician. Ever since the work of Sir William Hunter, in England, in 1910, the address of Doctor C. H. Mayo in 1913, entitled, "Constitutional Diseases Secondary to Focal Infection," and the

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work of Billings and Rosenow at about this same time, assumptions, clinical observations and theories have advanced the now-accepted view that diseases of the teeth and supporting structures *are* intimately related to the health of mankind in all eras of life. Today, and by the majority of dentists and physicians, it is believed that caries, vital degenerating pulps, periapical infections around pulpless teeth, residual infections after extraction, impacted and unerupted teeth, gingival infections and pyorrhoea, may all serve as sources of focal infection, which, by various and devious routes, may be productive of disease elsewhere, notably in the eyes, joints, muscles, heart, gastrointestinal tract and lungs. Granted that the mechanism of secondary focal infection is not precisely clear and does not regularly follow along predictable lines, the fact remains that a healthy body includes a healthy mouth. Healthy mouths, in the literal sense, are relatively rare, since, according to all statistics, the incidence of oral infections is inordinately high. Both physicians and dentists are sworn to health service. It, therefore, logically follows that medico-dental relationships between the two groups, as professions and as individuals, should and must be intimately and intelligently cooperative, looking to the best health for communities in general and individuals in particular; anything short of this could not merit the approval of an enlightened public.

In order to understand why medico-dental relations have *not* been, until recently, as close as they should be, it is necessary to recall some interesting historical and evolutionary facts. The rather anomalous position occupied by dentists over so many years may, in part, be attributed to the fact that for centuries teeth were regarded "as if they were something extraneous to the body, something essentially inanimate, because of their lack of a visible capacity to repair themselves." Now it is true that teeth are virtually incapable of self-repair; that injured enamel does not heal; that once it is removed it is not restored. None of the common dental diseases are curable by drugs, though most are amenable to repair by mechanical means. Since teeth secrete nothing of value elsewhere in the body, they may all be removed without jeopardy to the body as a whole, and artificial substitutes can be

supplied for the efficient maintenance of dental function or mastication. "These conditions that do *not* apply collectively to any other part of the body, explain in part the traditional unconcern among physicians regarding the teeth, and largely account for the development and maintenance of dentistry as a separately organized and now recognized autonomous profession."

For a great many years dentists were regarded as members, one might say, of a barber-surgeon union. Later on they were considered essentially as pullers or restorers of teeth, plying a somewhat itinerant and charlatanistic trade. "In the United States, goldsmiths, jewelers, umbrella makers, blacksmiths, wig makers, tinkers, engravers, and jacks of all trades became the most numerous practitioners of dentistry, which for many years remained a simple trade and a mechanical subsidiary to medicine." Later on, and practically during the entire nineteenth century, "the dentist lived in a No Man's Land, between a profession and a trade," and even today, in either the prejudiced or uninformed mind, he is apt to be regarded more as a mechanic, plying a manual craft.

In this country the dental profession is relatively a young one. The first dental college established in America was founded in Baltimore in 1838, and it is of more than passing interest that its incorporators, Hayden, Harris, Bond and Baxley, all of them possessing the degree of Doctor of Medicine, sought to have the Baltimore College of Dental Surgery, as it was ultimately called, founded under the guidance of the University of Maryland Medical School. Their suggestion was rejected by the then Medical Faculty, in the words that "the subject of dentistry was of little consequence, and thus justified their unfavorable action." Numerous other attempts to establish dentistry under the direction of medical schools, in New York and elsewhere, met with a similar verdict, and it may truthfully be stated that "ignorance, intolerance and professional vanity achieved another of their woeeful triumphs." In the face of such open rebuffs, independent dental schools were founded and the development of dentistry as a profession separate from medicine ensued and has continued ever since. It should never be forgotten that those pioneers responsible for the

initiation of this movement wisely based their curriculum upon the then existing medical sciences. Despite this, dentistry's realization of its need for the medical sciences was not keen enough to give to that instruction the quality it bears in medical education, nor to impart to dentistry the character of a specialty of the practice of medicine.

Between 1840 and 1900 the practice of dentistry was mainly limited to the extraction of carious and aching teeth, and to the construction of dentures for individuals who unfortunately had become edentulous. Gradually, as operative and prosthetic dentistry developed, the technical complexities involved demanded so much effort that there was neither time nor energy left for other kinds of medical work or interest. As a matter of fact, the majority of dentists were not trained in medicine at all, and physicians certainly not in even the rudiments of dental practice.

Since 1900 the profession of dentistry has steadfastly advanced along many lines, especially through the contributions of bacteriology, pathology, roentgenology and nutrition, until now it rightfully occupies a prominent place in internal medicine. It is not a specialty of medical practice; rather, "it is a natural division of health service: that is to say, it is a natural division of medicine itself." The turning point came perhaps in 1909, when a certain Doctor William J. Gies, of Columbia University, himself neither a physician nor a dentist, but a member of a medical faculty still disdainful of dental practice, had a vision to advance both the dental profession and dental research. To quote his own words, "I soon realized that dental practice should be regarded, in the public interest, as preventive and restorative *health-service* primarily, not chiefly as superficial mechanical *comfort-service*; also that dentistry needed major development, in research and in practice, on the biological side; that the *minimum* requirements for admission to dental schools should be not less than the minimum for admission to medical schools, so that those *entering* the two professions would be of the same personal and mental caliber; and that the medical and dental professions should work intimately together, in mutual understanding and respect, in the interest of the patient." This vision ultimately led to an extensive investigation of

dental education in the United States and Canada, conducted by Doctor Gies under a grant from the Carnegie Foundation. This was completed and published in 1926. This comprehensive report exerted a tremendous effect in clarifying the important issues in the dental field of professional training, and subsequently led to the establishment, in 1930, of a Dental Curriculum Survey Committee, whose final report, embodying its aims, ambitions and objectives, was published in 1935, and, in the author's opinion, should be perused by all farseeing medical practitioners, deans of medical schools, and dentists alike.

No doubt the question arises—What has all this to do with the interrelations of internal medicine and dentistry? The answer is, first, that the two professions, in respect to health service, have fundamentally identical aims, and hence cannot be dissociated one from the other, and, second, that the desired and inevitable cooperation or interrelation between dentistry and medicine will be hastened by an aroused appreciation of, and actions by the *medical* profession, concordant with a number of facts too poorly recognized by it. Some of these, each of which constitutes a theme in itself, can be but briefly enumerated:

(1) The profession of dentistry is now highly organized, progressive and supervised, thoughtfully and stringently regulated by law in every state of this Union. Its 60,000-odd licensed practitioners perform invaluable health services, for which they have been trained under the auspices of 39 dental schools or colleges, none of which are any longer proprietary, while most of them are integral parts of well-recognized universities, with their affiliated medical schools. While dental standards have risen, most medical faculties have continued to be unwilling to teach medical students even the "medical" part of dentistry. "If interest in the 'medical' part of dentistry continues at its present rate of growth in the medical schools of the United States, it may be expected that by 1985 all the medical schools in this country will devote—to required work in dental and oral relationships—an average total of 8 clock hours in the entire undergraduate curriculum." There is much for the medical profession to think about, in this statement.

(2) The practice of dentistry—on the teeth and the contiguous tissues, with their varied disorders, diseases, mechanical anomalies, and sequelae—*must* be focused on the oral cavity, precisely as an histologist must focus his endeavors on a microscopic field. Dental practice consists largely in *doing* within the mouth, by the dentist *himself*, not in advising or prescribing for the patient. Breadth of knowledge is of no less value to the dentist than to the physician or pathologist; but the application of this does not of necessity change either the scene or the technique. But it is to be remembered that dental practice does not embrace only mechanical dexterity and precision, as representative of therapeutic exactness. Dental practice includes also the opportunity and obligation to detect oral symptoms of various systemic maladies, of communicable diseases and of abnormalities in the domains of laryngology, rhinology, dermatology, otology, etc.; also, to give to patients advisory health service on such subjects as dietetics, hygiene, the prevention of diseases, and, not least of all, to urge the necessity of competent medical opinion in the patient's behalf.

(3) It would be both stupid and impossible to make dentistry a specialty of medical practice, as has been advocated by some in both professions; this for the reasons that both the length of time and the costs involved would be prohibitive, the results dispersive in quality, and the objectives gained in no sense worthy in the eyes of the dental profession itself, or the public at large. "Dentistry should be, and is being developed into the full health-service equivalent of a specialty of medical practice."

(4) No profession that lacks the freedom and lure of self-determination can offer an attractive and satisfying career to its practitioners, and this, incidentally, is a condition primarily essential to the best and most comprehensive public service.

(5) Some years ago, the late and beloved Doctor William S. Thayer, in commenting on the Harvard Dental School, penned these words: "The ophthalmologist and the physician meet on common ground: they are members of the same medical societies. Their subjects are discussed at common meetings. The

dentist and the physician do not meet on the same common ground. This is unfortunate for the physician, for the dentist and for the patient. The circumstance that the requirements for admission to dental schools have been lower, and the circumstance that the amount of general and medical education demanded of the dentist has been less than that demanded of the physician and surgeon, have worked to place the dentist at a disadvantage in the medical and general community. This has not only been a disadvantage to the dentist, it has been a very real disadvantage to the medical profession. It is, we believe, of importance to medicine that the time may come when dentistry will be, as it should be eventually, one of the specialties of surgery. As the years go by, the importance of that branch of surgery practiced by the dentist becomes more and more evident, and the interdependence of dentistry and the other branches of the art of medicine and surgery clearer." Independence with interdependence represents a realistic and commendable foundation for honorable and valuable relations between the two professions, and on this basis dentistry desires intimate correlation. The dental profession, by its own efforts, has sought successfully to raise its educational standards to a level that merits this. It is interesting to know that all dental schools will require at least two years of accepted work in an accredited academic college, beginning in 1937, and that nearly half the schools now exact this requirement.

(6) There is no reasonable basis, worthy of serious consideration, for a continuance of the indifference, in hospitals, in medical faculties and medical schools, and among physicians, to the importance of dental diseases and the broad value of adequate dental health service. This indifference, understandable in the past, and fortunately on the wane, can no longer be in accord with any principle of the faithful recognition of public or professional responsibility.

The fundamental differences in medical and dental practice are, of course, reasonably obvious. Dentists clearly recognize the fact that the term "Medical Practice" includes the whole body; that it is not restricted to any single part or region; and that it is more actively interested in the various dynamic phases of life and disease, rather than in those tissues

and organs which are essentially static. Obviously the domain of medical practice demands a far greater breadth of information, understanding and discernment, combined with advisory capacity, than mere skillful manual dexterity. The dental profession, clearly recognizing both the wider scope and the more intimate relationships to the immediate life of the patient, grants the fact that in any useful interrelationships medicine must and should be the senior partner and presumably the director and leader in matters of mutual concern. Frankly conscious of these facts, the more far-seeing minds in the dental profession have recognized the fact that both dental education and dental practice must be made stronger in its content and understanding of the fundamentals of medical science, so that in turn dental science, dental research and dental practice will become increasingly more learned and effective, not only in terms of practice but ultimately so that individual physicians and dentists, in their consultations and practical cooperation, will more or less speak the same language without needing the aid of interpreters. Success along these lines would unquestionably be more rapid and fruitful if the medical faculties in the same university would give more effective assistance, instead of their too frequent indifferent help. Both medical and dental interrelationships should include more intimacy in both hospital and dispensary, as well as private practice, so that both dental graduates and medical graduates would be far better informed than they are now, regarding the clinical relationships of dental and medical practice.

In conclusion, it would seem obvious that whatever exists in the present state of affairs which impairs mutual respect, esteem or understanding should be removed by attention and effort on the part of both professional groups. Since medicine occupies by far the broader territory, it should be the leader in all accredited efforts to enhance the mutual interrelationship responsibilities, and should consistently seek to adopt a relationship toward dentistry similar to that of a "big brother," and not like that of a bully. "Sound progress of the dental division of medicine is one which ought to be welcomed by every thoughtful

physician, because it means lifting one more division of the whole practice of medicine on to a more intelligent, a more scientific and a more efficient basis. We are all, whether we will or no, part of the same body of learning and practice. None of us can be depressed or unworthy without affecting unfavorably the whole body. None of us can make advances in knowledge or skill or character without once more lifting the level of the whole, and so the medical profession at large will find it is to its interest and to its credit to foster every advance that is made by the dental branch of the healing art."

MISCELLANEOUS

Rocky Mountain Spotted Fever

The advent of warm weather marks the appearance of the dog tick (*Dermacentor variabilis*), the principal vector of Rocky Mountain spotted fever in the eastern states. The recognition of this disease in Virginia was established less than ten years ago, but because of the lay publicity which it has received, its presence has caused no little concern in some areas of the state. Therefore, it has been thought wise to review briefly some of the features of this illness as it occurs in Virginia.

An average of approximately fifty cases per year of Rocky Mountain spotted fever is reported to the Virginia Department of Health. The disease has been confined principally to that area of the state which lies east of the Blue Ridge Mountains, with a few cases in the mountain area and only a rare occurrence in the western portion. The cases have occurred chiefly in the late spring and summer (May through September) corresponding to the months of greatest activity of the tick population.

The disease is most prevalent in rural dwellers, with farmers and members of their families comprising the majority of the cases. The group showing the next highest incidence are those whose occupation or pleasure takes them into tick-infested woods or fields; foresters, hunters, campers and the like. All ages are attacked and sex is no factor aside from the greater risk of infection of males by virtue of their work.

The onset of the disease may be sudden but usually begins with a prodromal period of a

few days in which general lassitude, fatigue, vague aches and pains and dull headache are experienced. This is followed by severe headache in the majority of cases, fever which rapidly rises to as high as 104° - 105° in some cases, and occasionally one or more chills. Soreness and pain in the muscles are frequent and a definite stiffness of the neck and back is observed in a fair number of instances. Prostration may be marked and restlessness and insomnia are not infrequent. Delirium, disorientation, or coma may occur in the severe cases. Constipation frequently is observed, and occasionally abdominal tenderness. Bronchitis with scant to non-productive cough is common. The characteristic rash usually appears between the second and sixth day, and begins first on the ankles and wrists and spreads centrally to the legs, arms, back, chest and occasionally to the face and scalp. The palms of the hands and soles of the feet may be involved. The rash is at first pink or brownish pink and macular in character, becoming more pronounced in color and, finally, definitely petechial in some cases. When well established, the rash may appear distinctly purple-red. Confluence of lesions has been reported and necrosis of the skin has been observed in severe cases.

The pulse usually is low in proportion to the temperature at the onset, but may become unusually fast, particularly in the terminal stages of the severe cases. The course of the disease usually extends over a two to three-week period with the temperature subsiding by lysis.

The leukocyte count is of no particular value as an aid to diagnosis. An agglutination reaction with *Proteus* X2 and X19 is frequently exhibited by the patient's blood serum by the end of ten to fourteen days of the illness.

The case fatality rate observed in Virginia has been approximately twenty to twenty-five per cent. As in other acute infections the rate is highest in very young children and older adults.

A definite history of tick bite can usually be elicited in about 50 per cent of the cases though the exact date the bite occurred is not, as a rule, definitely established except in a few of the cases.

The diagnosis of Rocky Mountain spotted fever when a definite tick bite history is given and when the characteristic eruption has appeared is usually simple. The disease must be differentiated from endemic typhus, in which the rash begins centrally and spreads peripherally, in contrast to the peripheral origin of spotted fever. Typhus occurs most often in the colder months, and affects urban dwellers chiefly. Before the appearance of the rash, spotted fever may be mistaken for cerebrospinal meningitis or poliomyelitis, because of the frequent occurrence of stiff neck and back and pain and soreness in the muscles. The presence of a slow pulse with high fever may erroneously suggest typhoid fever.

Prevention of Rocky Mountain spotted fever is concerned with (1) avoidance of areas known to be tick infested, (2) removal of ticks from body before they have become attached, (3) vaccination.

The use of clothing that will prevent ticks from gaining access to the body is advisable for those who must necessarily work in tick infested areas. A thorough examination of the body twice a day, at noon and upon retiring, is advisable even when protective clothing has been used. Particular attention should be given the hairy areas. Campers, hunters and other pleasure seekers should avoid old roads and paths with dense undergrowth and overhanging bushes. The best camp site is one where there is little or no low vegetation.

A specific vaccine prepared in the United States Public Health Service laboratories has proven of value in the prevention of Rocky Mountain spotted fever. The vaccine is prepared from the tissues of infected ticks and is given in two doses of 2 cc. each at five-day intervals. The immunity conferred is considered to last approximately one year. The use of this vaccine in Virginia has been confined principally to those persons whose occupation brings them into frequent contact with areas heavily infested with ticks. The vaccine is distributed to physicians upon request without charge. A small supply is kept in the Virginia Department of Health. The vaccine is of no value in the treatment of the disease, and its use for this purpose is ill-advised.

EDITORIAL

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AN IMPORTANT MEETING

There will be held in Washington, D. C., the middle of July, a meeting which should be of extreme importance to the medical profession. This meeting is called by Miss Josephine Roche as chairman of the Interdepartmental Committee to Coordinate Health and Welfare Activities of the Federal Government. Its purpose superficially is an excellent one, namely to weave together the various departments in the Federal Government which have to do with the care of the sick and the health of the nation as a whole. The real intent of the committee should be to avoid duplication of effort and work in the different Federal departments to which various phases of the health of the nation have been delegated.

While superficially the purposes of the meeting are excellent, there is grave fear in the minds of many thinking physicians who

have the best interests of the medical profession at heart, that the purpose of the meeting is not so much to carry out its suggested purposes but rather to turn the meeting into a means of establishing state medicine. In other words, it may be the first gun of a sincere effort to organize and institute state medicine. The American Medical Association will have certain important representatives in attendance but there have been invited also a large group of other individuals whose interest in medicine is peripheral rather than central. They have grand ideas and grandiose schemes for the care of the indigent. They probably will outnumber by far members of organized medicine and will be in a position to put over pretty much anything they wish.

Miss Roche was to have read a paper before the House of Delegates of the American Medical Association. She prepared this paper but was unable to attend and her place was taken by Assistant Surgeon General Draper of the United States Public Health Service. Miss Roche is undoubtedly a woman activated by the highest motives but it is the feeling of many medical men that the recent national health survey of the Public Health Service, upon which she predicated and based most of her statements, does not bring out the true picture of illness and the effect of illness throughout this country. It is very easy to believe that the obvious fact that the lowest income group have more days of disability per capita than do the relatively well to do, but it is not right nor fair to assume that this is due to inadequate medical care. Rather it would seem more proper to state that improper housing and inadequate food are the responsible factors. Likewise it does not seem that there are twenty millions of people in this country who do not have available hospital facilities. On the contrary the American Medical Association has statistics which show that there are less than two million people in this country who are farther than thirty miles from a hospital where attention would be given to the poor man as well as the well to do. Most of these two million people are in communities where there are as few as five or ten people living in a square mile, in other words in the

great vast, poorly inhabited sections of the country. With the excellent good roads that are now existing throughout the United States it will be possible for any person, except the very small percentage of people in the wilds to obtain hospital service in an emergency in a very short time. Furthermore in case of chronic disease it is possible to have hospital care except for a very few instances. Here in Louisiana our state hospitals take care of the difficult and problem cases in very large numbers. Additional facilities are being provided by the state government in the form of hospitals established in different sections of the state other than the extreme north and extreme south. It seems almost unbelievable that a Louisianian cannot get good medical care. He can and does; the state provides it through its hospital service which has been running for many decades.

Because of the necessity of having exact facts, it is of extreme importance that the medical profession cooperate wholeheartedly and conscientiously with the Bureau of Economics of the American Medical Association in collecting the necessary facts which have to do with medical and dental practice, nursing service, medical services arranged through relief agencies and many other data which will give a true picture of medical care in this country. The parish medical societies' secretaries will probably have to bear the brunt of this cooperative effort of organized medicine. It will be a hard job, and time consuming, but it should be done. Many state and county societies have already gone into this survey wholeheartedly. Some of the county societies have acquired part-time help to aid the county society secretary. For example, in Birmingham, the Jefferson County Medical Society has appropriated \$500 to help defray the expenses necessary to make the survey. If all parish (county) and state societies back up the American Medical Association in this way organized medicine will have definite figures, definite facts and positive information to refute the frequently wild statements of those whose minds are inclined to the regimentation of everything, be it through a Nazi or communistic groove.

Editorial, *New Orleans M. & S. Jour.*,
July, 1938.

Delaware Doctors Oppose Socialized Medicine

Approximately 79% of the doctors of Delaware are opposed to a reorganization of medical practice in the direction of socialized medicine, it is revealed today in the final results of a physician's referendum on socialized medicine conducted by *Modern Medicine*, published in Minneapolis. A total of 16,711 ballots were cast by doctors throughout the nation, giving the greatest direct expression of medical opinion ever recorded on any topic whatsoever, and indicating that the trend of medical thought—except for New York City—is definitely away from socialized medicine, the editors announce.

On the question as to whether public funds should be used to pay the cost of medical care for the indigent and low income group, only 47% of Delaware doctors voted in favor. However, 84% voted support of the present policies of the American Medical Association in studying all plans of making a high standard of medical care available to all people under the control of each community.

Of the specialists in Delaware, 80% voted against reorganization, of the general practitioners, 79%. Among doctors in metropolitan centers in Delaware (cities over 50,000), 80% voted against reorganization. Of the specialists, only 40% favored the use of public funds to pay for medical care, of the general practitioners, 50%.

The final results obtained in *Modern Medicine's* referendum on socialized medicine are at great variance with the recently published "Gallup poll," which, under the sponsorship of the American Institute of Public Opinion, reported that 7 out of 10 doctors favored the principle of health insurance. According to the *Modern Medicine* referendum, in which 16,711 doctors' votes gave a true cross-section of medical opinion throughout the whole United States, active practicing doctors in the United States definitely oppose the reorganization of medical practice by a vote of two to one.

They know of very few cases, not more than one in ten, where individuals or families, claiming inability to pay, are not getting whatever medical care a physician himself can provide. They show a slight preference (55%)

for the use of public funds to pay for medical care for the indigent and low income groups. They strongly approve the present policy of the American Medical Association, by a vote of 17 to 3.

This vote shows a definite trend of opinion among U. S. doctors away from socialized medicine. In 1935 a similar survey was conducted by *Modern Medicine*. In 1935, 43% of 6,044 doctors voting favored a change in the administration of medical practice. In 1938, two out of three doctors, among the 16,711 voting, oppose reorganization.

Among doctors who replied yes to the question on the physicians' referendum which read: "Do you know of any case in your community where an individual or family, claiming inability to pay, has been refused whatever medical care a physician could provide?", many amplified their answers to the effect that the so-called "claim" of inability to pay was false and that care was sometimes refused to individuals who spent their money on luxuries, vacations, transportation, liquor and gambling while owing bills and telling the doctor they could not pay anything at all for his services.

The greatest opposition to reorganization of medical practice is found among country doctors, general practitioners who have been in practice for more than 15 years. Reorganization of medical practice finds most favor among general practitioners who are earning less than \$3,000 a year while practicing in large cities.

The President-elect—Dr. Rock Sleyster

The selection of Dr. Rock Sleyster, Wauwatosa, Wis., to be President-elect of the American Medical Association, at the annual session in San Francisco, June 16, is a recognition of long and devoted service to organized medicine in the United States. For thirty-five years Rock Sleyster has continuously held a position of service to the medical profession. In 1903 he became secretary of the Calumet County Medical Society, continuing for six years. He was elected assistant secretary of the State Medical Society of Wisconsin and secretary in 1914. He remained as secretary until 1923 and was elected president in 1924. Since 1925 he has been

treasurer of the society. From 1918 to 1923 Dr. Sleyster was editor of the *Wisconsin Medical Journal*. From 1915 to 1926 he served as delegate to the American Medical Association and during the last four years of that period was Vice Speaker of the House of Delegates. He became a trustee of the American Medical Association in 1926 and served continuously until June 1937, acting as chairman of the Board from 1935 to 1937. His professional record is likewise inspiring. He was graduated by the University of Illinois College of Medicine in 1902. After practicing medicine at Kiel and Appleton, Wis., he became physician to the prison for the criminal insane at Waupun, Wis. Here he did research, much of which was reported in leading medical periodicals. Later he directed the building of the Wisconsin Hospital for the Criminal Insane and thereafter became medical director of the Milwaukee Sanitarium at Wauwatosa, which position he still holds. He is a fellow and has been a member of the board of governors of the American College of Physicians and a member of the American Psychiatric Association, the Association for Research in Nervous and Mental Diseases and the Central Neuro-psychiatric Association. It is a noteworthy fact in his career that Dr. Sleyster has been unanimously elected to every office which he has occupied, never having been opposed by any other candidate.

—*Jour. A. M. A.*, July 2, 1938.

BOOK REVIEWS

The Romance of Proctology. By Charles Elton Blanchard, M. D. Pp. 284. Cloth. Price, \$4.50. Youngstown Medical Success Press, 1938.

This is a rather readable recital of the origin and development of ambulant proctology.

Standards of the Diagnosis and Treatment of Cancer. By the Executive Cancer Committee of the Iowa State Medical Society. Pp. 168. Paper. Iowa City: Athens Press, 1938.

This little manual is primarily designed to assist the general practitioner in making a diagnosis and in outlining a treatment for the many cases of suspected malignancy that will be unearthed by the Women's Field Army and others. The work is concise and authentic—a very valuable ready-reference manual.

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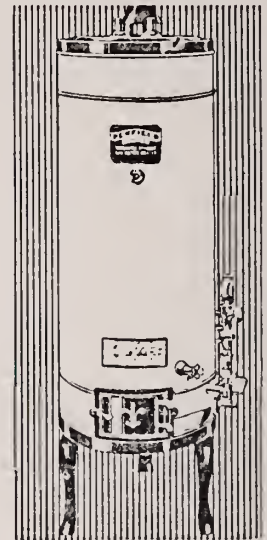
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BASIC OPERATIONS IN COMMERCIAL CANNING PROCEDURES

VI. COOLING THE TIN CONTAINER AFTER THERMAL PROCESSING

● On this page we have previously described certain basic operations in commercial canning procedures. These have included cleansing of the raw material; blanching; exhausting or pre-heating; sealing the tin container; and thermal processing of the sealed container. In this—the last of this series—we shall discuss the final basic operation, namely, the cooling of the sealed can immediately after the heat process.

One main reason for rapid and thorough cooling of the can contents—as soon as the objective of the heat treatment has been fulfilled—is more or less self-evident. Prompt cooling checks the action of the heat and thus prevents undue softening in texture or change in color of the food. Also important, particularly in the case of foods of an acid nature, is the prevention of excessive chemical action between the food and the metal container, which may occur if the contents of the can remain hot for an extended period of time. In modern practice, two types of cooling are commonly used, namely, air cooling and water cooling.

Air cooling, as the name implies, involves cooling of the tin container by facilitating radiation of its heat into the air. This type of cooling is adaptable to certain products in small cans. In other products, or in the case of larger cans, it is employed chiefly when the slower loss of heat, characteristic of this cooling method, is essential either for preservation of the food, or for the production of certain quality characteristics in the final product. Modern air cooling is accomplished in well ventilated, specially designed warehouses where the cans are piled in rows, allowing ample space between rows for efficient air circulation.

The several methods of water cooling and the technique by which they are carried out are detailed elsewhere (1). Briefly, water cooling may be effected in a variety of ways. The hot cans may be cooled by admitting water into the retort in which they were processed, or they may be cooled after removal from the retort by conveying the cans through tanks of cold, running water or through cold water showers. Large size, or irregularly shaped cans—processed under steam pressure—must be cooled in the closed retort at the end of the process to avoid undue strain on the containers. This is accomplished by “pressure cooling” in which pressure is maintained in the retort during the cooling of the cans, to counterbalance the pressure which develops during the process within the can itself. Commercially, cans are water-cooled to about 100°F. so that enough residual heat remains to dry the can exterior.

Present day canners are fully aware of the importance of cooling their products rapidly and completely as soon as the process is completed, in order to insure the production of canned foods with high quality characteristics. Consequently, in modern canneries the cooling operations are strictly supervised like the other basic operations in the commercial canning procedure. After inspection and labeling, the cooled cans are then ready to enter distribution channels for delivery to the consumer.

In this series of six discussions, we have attempted not only to describe the basic steps in commercial canning procedures, but also to explain their purposes. We trust this series may help bring a better understanding of this important method of food preservation.

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(1) 1936. A Complete Course in Canning, 6th Ed. The Canning Trade, Baltimore.

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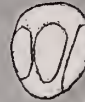
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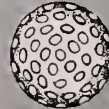
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TUBERCULOSIS IN DELAWARE

ARTHUR C. JOST, M. D.*

Dover, Del.

There has been quite marked improvement in Delaware, as evidenced by a reduction in the mortality caused by the disease, since the year 1921. The improvement is to be measured by the rates of loss in each 100,000 of population, having fallen from 137 in the year 1921 to 58 in 1937. For purposes of comparison, these figures may be contrasted with those of the U. S. Registration Area for the named years, namely, 99 in 1921 and 55.6 in 1936, the figures for 1937 not yet having been published. The drop has therefore been sharper in the state, though it may not have been so orderly. The Area, which has increased greatly in population through the addition to it of states qualifying for admission, shows a sustained improvement, little varying from year to year. A marked improvement in the state in any year seems to be followed by a period of escalation, before another drop occurs. Thus the year 1937 was not the year which in the state showed the best rate it has yet obtained.

It is quite possible, however, that the consideration of the rate of the state as a whole, quite fails to show adequately the change which is taking place from year to year. For a much more complete picture, the examination of the rates by race gives much more information.

The rate of loss of the white population of the state has fallen from 107 in 1921 to 42 in the year last past. This represents a reduction of about 60 per cent. The reduction has been quite regular, subject to the condition above referred to, possibly as regular as is to be expected for such a population. There is, however, marked irregularity in respect of the various population groups. The years

commencing and terminating the period show best the change, the intervening years falling into line in accordance with the trend.

Age Group	1921	1937	Plus or Minus Difference	Percent Reduction
0-4	14	4	Minus 10	81%
5-9	3	0	Minus 3	
10-19	20	3	Minus 17	
20-29	48	14	Minus 34	71%
30-39	46	16	Minus 30	65%
40-49	24	13	Minus 11	46%
50-59	13	20	Plus 7	
60-69	12	10	Minus 2	
70-79	14	8	Minus 6	
80 and over	0	2	Plus 2	

There are several points in connection with the table which deserve comment.

A. The highest rates of improvement are to be found in the youngest age groups. For all persons under age 20, the losses have declined to the extent of about 81 per cent.

B. Actually more lives were lost in the age groups above 50 during the year 1937 than in 1921. (40 to 39)

C. The classical curve of tuberculosis deaths, one reaching its highest point in the age groups in which young adults are included, has quite altered. Whereas in 1921 the top of the curve was reached among those aged 20 to 29 (the number being 48), the high point in 1937 involved the population groups between 50 and 59. The highest rate is now to be found in the 70 to 79 age group.

In so far, then, as the white population is concerned, tuberculosis does not now seem to be a disease of the central age groups. The average age of all the white tuberculous who died in 1921 was 35; of those who died in 1937, it was 56. The average ages of fifty inmates of Brandywine Sanatorium, patients on July 1st, 1925, or admitted till September of the same year, was 31.5 years. The average ages of the last fifty admissions to the same institution was 34.3.

It may be that the intimations of the latter

*Executive Secretary, Delaware State Board of Health.

named condition are more to be relied upon than are the average ages at death, since to quite an extent the figures of these may be affected by the rules of classifying deaths which are followed by the statisticians. Tabulation rules are to the effect that tuberculosis being anywhere named on a death registration, precedence must be given to it over any other joint or complicating cause. But the falling off of clinic attendance and the difficulty in filling the wards of the Children's Hospital, for which institution there has never been a waiting list, may be cited as evidences from other sources of the decline of the disease among the younger elements of the white population.

An entirely different picture is presented in respect of the colored. In respect of these, also, there has been improvement, indicated by a reduction of the rate per 100,000 from 328 in 1921 to 160 in 1937, or in number of deaths from 100 to 55. The per cent of improvement is therefore about 50, somewhat lower than the other figure. The number of persons dying by age groups seems to present an entirely different condition.

DEATHS (Colored) FROM TUBERCULOSIS

Age Group	1921	1937	Plus or Minus Difference	Percent
0-4	7	3	Minus 4	39%
5-9	3	1	Minus 2	
10-19	21	15	Minus 6	
20-29	26	13	Minus 13	50%
30-39	12	8	Minus 4	33%
40-49	18	9	Minus 9	50%
50-59	6	2	Minus 4	66%
60-69	5	2	Minus 3	60%
70-79	2	2		

This table contrasts quite sharply from the one above given.

A. The improvements which have been experienced are to be seen especially in the advanced age groups. For example, for ages under twenty the improvement is represented only by 39%, contrasting with 81% for the other group. Whereas for all ages over fifty among the whites there had actually been more deaths, among the colored there was a 54% improvement.

B. The classical curve, the apex of numbers being found in early adult life, is still a feature of the colored experience. Among these the greatest number of deaths in 1937 occurred in age group 10 to 19, tapering off among those of more advanced ages.

C. The average age of death was almost exactly the same during each year, about 30.

Taking into consideration the differences between the white rate in 1921 and the colored rate in 1937, the similarity of the curves is noticeable. One seems to be justified in believing that tuberculosis will never again, in respect of the whites at least and unless something of a catastrophic nature supervenes, take the yearly toll which heretofore has been taken. We may hope, in fact, that the reduction in the loss of life will continue till, as some public health authorities are not hesitant in declaring, the disease will not long be a public health problem of importance. If so, are we justified in believing that the improvement will take place in the steps of the process which can be followed in respect of our white population, namely, the gradual wiping out of the loss in one of the young age groups after another till finally even the older ones are affected by the change? It would appear that tuberculosis control of the white population of the state, if indeed there be any such thing as tuberculosis control at all, is approximately about twenty years in advance of that which has been brought about in respect of the colored population. But up to the present time much the same procedures have been followed in respect of both sections of our population. Why has one section responded so noticeably, while in the other the same reaction cannot be observed?

Certainly, there are vast differences in respect of a number of economic conditions or factors, the importance of which cannot be overlooked. Moreover, although this is only a development of the past few years, there is a difference in respect of the provision made by the state for the care in hospital of its tuberculosis sufferers. Provision has been made for hospital space, equivalent to two beds per annual white death. For the colored there is little more than half a bed a death. Is this one of the reasons why the colored rate exceeds that of the white about four times?

Another question may be asked. If what might be considered to be the normal process of disappearance is that of which there is evident proof in respect of the whites, namely, the progressive reduction beginning with the youngest and following the other age groups

in order, should not our efforts be so planned as to coincide with that process? Should we not place greater stress upon the preventive work which we can undertake for the protection of the young, commencing with the infants?

Briefly, the control efforts now in force in the state are those afforded by diagnostic clinics, the provision of sanatorium beds and a follow-up service. The number of diagnostic clinics is such that little difficulty is experienced in making the service available for every portion of the state. There seems to be a fairly ample provision of hospital beds for the whites, since now the waiting list of that institution has been fairly well provided for. This cannot be said in respect of the colored institution, since at Edgewood there are sometimes as many on the waiting list as there are in the institution. In the files of the follow-up nursing service there are records of a total of 949 active and arrested cases and of 4669 contacts who are being visited at regular intervals by the nursing staffs. Tuberculin testing and x-ray programs have been carried out in all the larger schools of the state. One can think of few ways in which this program can be profitably supplemented, unless it is by vaccination with B. C. G.

The vaccination of children against tuberculosis by the use of this material was commenced about sixteen years ago in Europe. The practice appears to have there made sufficient headway to have brought it about that in France, where the method first originated, about twenty per cent of all infants receive treatment. Over a year ago there were records of more than a million and a third having been treated apparently with safety so far as the immediate results are concerned. One can be sure of the permanence of the result only after a number of years has elapsed and the child has passed in safety the dangerous period of early adolescence.

The staunchest proponent of the practice in America is Dr. W. H. Park, who ten years ago instituted in New York a series of experimental studies which apparently have convinced him of the value of the procedure. The purpose of the study then undertaken was, as stated by himself, to determine if the vaccine was free of harm to human beings, if it was

effective in the prevention of tuberculosis, and if the good accomplished was enough to warrant its use on a large scale as a public health measure. He has himself given the answers to these questions.

1. "The evidence obtained by other workers and by us shows more and more clearly that the B. C. G. vaccine is harmless to animals and to human beings."

2. "In our experience the parenteral administration of the Calmette culture is more effective than the oral because the tuberculosis death rate decreased to its half when the oral method was used, and to its fourth when the B. C. G. vaccine was injected intracutaneously or subcutaneously."

3. "As the use of B. C. G. vaccine is harmless and increased considerably the resistance to tuberculosis, its use should be urged as a public health measure for the prevention of tuberculosis in those who have not yet become infected and may later be exposed to tuberculosis in their own families." (American Review of Tuberculosis, Oct. 1936.)

C. Gregory Kayne has stated his opinion in these terms: "Two facts with regard to B. C. G. are, nevertheless, emerging; it is harmless, and it is of some value if used, under certain conditions, as an adjunct to other methods of prophylaxis." (American Review of Tuberculosis, July 1936.) The reports on which his conclusions are based are wholly European in origin, and special importance seems to be given to the improvement said to have taken place in Oslo after the use of B. C. G. in hospital nurses.

Among the most recent reports are some published within the past two months from Canadian sources. Much more experimentation and also actual use of the material seems to have taken place in Canada than in the United States.

In Montreal it has been given for a period of at least twelve years, and a total of 15,782 vaccinations were recently reported. Special emphasis seems to be placed upon the results obtained from a group of 573 vaccinated children, considered in relationship with a control group which numbered 943. The differences in mortality were measured by the rate of 5.3 among the control group and 1.9 among the vaccinated. The first of these

figures had a standard variation of .72; the second a variation of .55. The difference was therefore 3.4, with a variation of .9 in favor of the vaccinated children, a significant difference if admitted, since the variation is exceeded more than three times. In the same way the difference in mortality was measured by the rate 11.4 with a variation of 1.03 among the controls, and 5.1 with a variation of .9 among the vaccinated. The difference is 6.3 with a variation of 1.3, again a significant difference.

A difference in mortality from non-tuberculous diseases in the two groups, (8.3 among the controls and 4.5 among the vaccinated) seems to indicate that the groups were not entirely comparable, and that in order to bring about complete parity, the mortality and morbidity figures of the controls should be divided by a factor of correction equivalent to 8.3 divided by 4.5.

From the New York experience it has been calculated that one must vaccinate 1667 children in the general population, or 37 children in families classed as tuberculous or 14 children in families in which there is an open case of tuberculosis in order to prevent one death from the disease.

This would appear to be worth while, so far as this state is concerned, in the hope that this method of attack would give a valuable impetus to the control efforts as they affect the youngest age groups, an effort which it would be well to strengthen.

RESUME OF MONTREAL STATISTICS—
1926-1937:

Total vaccinations, 15,782; study group numbered 1516, of which 573 were vaccinated and 943 were unvaccinated controls.

TUBERCULOSIS DEATHS AND MORBIDITY
IN STUDY GROUPS

No.	Deaths		Cases	
	No.	Rate per 100	No.	Rate per 100
573 vaccinated	11	1.92	29	5.1
943 controls	50	5.3	108	11.4

DEATHS FROM NON-TUBERCULOUS
DISEASES

	Deaths	
	No.	Rate per 100
573 vaccinated	26	4.54
943 controls	78	8.3

Note: Figures supplied by Dr. J. A. Bandouin.

COMPARATIVE INCIDENCE OF TUBERCULOSIS AMONG WHITE AND COLORED IN DELAWARE

LAWRENCE D. PHILLIPS, M. D.*
Marshallton, Del.

In January 1934, tuberculin testing was begun in the state by the staff from the Brandywine Sanatorium in conjunction with the Delaware Anti-Tuberculosis Society, and with the aid of the State Board of Health nurses. This work is being continued and data is now available from all sections of the state, both white and colored. This work has been done in the schools and in the regular scheduled chest clinics.

All testing has been done by the Mantoux method. In the beginning the material used was Old Tuberculin (O. T.); three tests being employed, namely: .01 mgm., .1 mgm. and 1 mgm. Later the National Tuberculosis Association recommended MA 100, which was used until the newest product, Purified Protein Derivative (P. P. D.) was put on the market. Since that time all testing has been done with this product, using .0002 mgm. and .05 mgm. dilutions for two tests.

To date 5950 children have been tested; 4867 white and 1083 colored. A table of the entire total by age groups, male and female, is as follows:

TABLE No. 1

	Number Tested	Number Reacted	Per Cent Reacted	Number Showing Infection	Number Needing Treatment
Under					
6—M.	214	74	34.6	7	3
F.	221	69	31.2	9	4
6—M.	184	37	20.1	10	0
F.	191	46	24.1	7	0
7—M.	231	48	20.8	7	0
F.	269	52	18.9	8	0
8—M.	235	64	27.2	13	0
F.	277	59	21.3	8	2
9—M.	242	81	33.9	18	0
F.	261	77	29.5	24	2
10—M.	262	74	28.2	14	1
F.	306	94	30.7	20	0
11—M.	236	77	32.6	18	0
F.	271	91	33.6	19	0
12—M.	239	97	32.2	24	1
F.	310	113	36.4	23	0
13—M.	249	117	46.2	30	3
F.	251	93	37.0	16	0
14—M.	248	111	44.3	31	2
F.	242	104	43.0	26	3
15—M.	183	90	49.1	15	2
F.	190	86	45.3	22	0
16—M.	161	101	62.7	28	0
F.	107	40	37.4	13	0
Over					
16—M.	189	114	60.3	15	2
F.	181	98	54.2	23	2
Total	5950	2107	35.4	448	27

The reason for the high rate of infection in the under six-year and six-year groups is that

*Director, Brandywine Sanatorium.

most of these children are, or have been, definite contacts.

The following table divides the above into white and colored by age groups:

TABLE No. 2

	Number Tested	Number Reacted	Per Cent Reacted	Number Showing Infection	Number Needing Treatment
Under					
6—W.	370	117	31.6	20	5
C.	65	26	40.0	3	2
6—W.	307	64	20.8	13	0
C.	68	19	28.1	4	0
7—W.	413	77	18.4	12	0
C.	87	23	26.4	3	0
8—W.	431	96	22.3	18	2
C.	81	27	33.3	5	0
9—W.	412	128	31.1	33	1
C.	91	30	33.	11	1
10—W.	460	132	28.7	31	1
C.	108	36	33.3	4	0
11—W.	419	139	33.2	27	0
C.	88	29	33.	10	0
12—W.	457	171	37.9	42	1
C.	92	39	42.4	6	0
13—W.	397	159	40.1	37	1
C.	103	51	49.5	12	2
14—W.	376	164	43.6	46	2
C.	114	51	44.7	16	3
15—W.	308	141	46.	29	1
C.	65	35	53.8	10	1
16—W.	206	102	49.5	29	0
C.	62	39	63.	12	0
Over					
16—W.	311	176	56.6	34	1
C.	59	36	61.0	8	3
Total					
W.	4867	1666	34.2%	371	15
				7.6%	.3%
C.	1083	441	40.7%	104	12
			9.6%	1.1%	

The following table is comparing the white and colored in the sections in which we were fortunate enough to be able to test both races.

TABLE NO. 3

	Number Tested	Number Reacted	Per Cent Reacted	Number Showing Infection	Number Needing Treatment
Under					
6—W.	347	109	31.4	25	7
C.	65	26	40.0	3	2
6—W.	224	56	25.0	11	0
C.	68	19	28.1	4	0
7—W.	300	60	20.0	11	0
C.	87	23	26.4	3	0
8—W.	317	67	21.1	16	2
C.	81	27	33.3	5	0
9—W.	317	99	31.2	32	1
C.	91	30	33.0	11	1
10—W.	337	100	29.3	26	1
C.	108	36	33.3	4	0
11—W.	306	90	29.4	20	0
C.	88	29	33.0	10	0
12—W.	357	119	33.3	33	0
C.	92	39	42.4	6	0
13—W.	301	103	34.2	27	1
C.	103	51	49.5	12	2
14—W.	292	97	33.5	33	1
C.	114	51	44.7	16	3
15—W.	240	109	45.4	23	1
C.	65	35	53.8	10	1
16—W.	167	83	49.9	21	0
C.	62	39	63.0	12	0
Over					
16—W.	255	130	54.9	29	1
C.	59	36	61.0	8	3
Total					
W.	3780	1222	32.3	307	15
C.	1083	441	40.7	104	12

The following table shows each individual section in which both white and colored were tested:

TABLE NO. 4

	Number Tested	Number Reacted	Per Cent Reacted	Number Showing Infection	Number Needing Treatment
Laurel & Scaford					
W.	668	172	25.7	45	1
C.	137	34	24.8	9	1
Dover					
W.	430	137	31.9	47	2
C.	165	46	28.1	15	1
Selbyville, Frankford					
Millsboro					
W.	339	93	27.4	19	0
C.	172	107	62.2	22	4
Smyrna & Clayton					
W.	541	144	26.4	48	0
C.	130	23	17.7	11	0
Lewes					
W.	136	47	34.5	6	0
C.	82	23	28.0	7	0
Ferris Industrial					
W.	94	62	65.5	12	1
C.	124	68	54.8	14	0
New Castle					
W.	234	77	28.6	13	2
C.	56	24	42.8	4	1
Wilmington					
W.	811	326	40.2	75	7
C.	96	46	48.1	9	1

The reason for the high incidence in Wilmington is due to the fact that practically all the work was done in the clinics on contact children.

From the above the incidence of infection is fairly parallel in the communities except in two instances.

The number of deaths and the rate for both white and colored is listed below:

DEATH RATE 1921-1937 INCLUSIVE
WHITE COLORED

Year	Number Deaths	Rate	Number Deaths	Rate
1921	208	107	100	328
1922	165	85	102	331
1923	172	88	87	280
1924	174	88	89	285
1925	147	74	83	264
1926	171	85	82	259
1927	141	70	81	254
1928	131	65	59	184
1929	132	65	60	186
1930	103	50	61	187
1931	136	66	74	225
1932	105	51	59	179
1933	116	55	62	186
1934	95	45	57	170
1935	99	47	59	175
1936	78	37	46	135
1937	90	42	55	160

The average of the rate for the past seven-teen years is 66 for white and 223 for colored. The colored being 3 1/3 times greater than the white rate.

CONCLUSIONS

These figures are too small to draw any definite conclusions. However, by referring to the above tables, it appears that the incidence

of infection is fairly closely parallel in each community between the white and colored races.

The percentage of active cases found by tuberculin testing and x-raying positive reactors closely parallels the white and colored rate in that the rate is $3\frac{1}{3}$ times greater in the colored, while the incidence of active cases found is also $3\frac{2}{3}$ times greater in the colored.

From the above one may draw the conclusion that the two races are almost equally infected; 32.3% white as against 40.7% for colored, but that the colored race from their infection will develop active tuberculosis $3\frac{2}{3}$ times more often in comparison with the white. Whether this is due to living conditions, lack of resistance or relative immunity is not in the scope of this paper.

THE STATE'S CRIPPLED CHILDREN'S PROGRAM

WOODBRIDGE E. MORRIS, M. D.*

Dover, Del.

For a crippled child to receive the full benefit of all that modern medical science can do for him, four major steps are necessary. He must be "found," diagnosed, treated, and given suitable after-care and training.

To help him take these steps, a Crippled Children's Service was established by the State Board of Health last October, using Social Security Act funds as a nucleus. The service is a coordinator. Such effectiveness as it may achieve (and maintain) derives from the cooperation it receives from practicing physicians, hospitals, the school system, other official and private community organizations, and the laity in general. This cooperation is excellent.

The name of a crippled child found by an individual or agency is sent to the Service. A public health nurse investigates. The family physician is consulted. If adequate care is being provided, nothing further is done. If not and if he advises it, arrangements are made for bringing the case to a diagnostic clinic. The service is limited to indigents.

The 1937 Assembly, in the bill which designated the State Board of Health as the official state agency to promote this program, defined neither crippled nor indigence.

For the present, a crippled child is taken to be a person of under 21 years of age who for reason of a physical defect or infirmity, whether congenital (cataract, hare lip, cleft palate, etc.), or acquired by accident, injury, or disease (non-custodial rheumatic heart conditions, burn contractures, etc.), is or may be expected to become totally or partially incapacitated for education or for remunerative occupation; excluding, however, such persons whose chief disability is irremediable blindness or deafness, and excluding mentally defective cases, speech defects and epilepsy. We are also excluding, for the present, cases of chronic bronchitis, atelectasis, lung abscess, pyelitis, nephritis, hernia; also burns in the acute stage, fractures treated without resulting deformity, and chronic otitis media without demonstrable hearing defect.

Indigence is determined by the state agency on a case basis. It is taken to vary with the nature of the complaint in relation to the entire economic status of the family. Families not considered indigent under normal circumstances are considered indigent when found unable to pay for more than a small fraction of the costs involved in adequate treatment of a crippling condition. It scarcely seems necessary to point out here that such treatment is frequently very expensive.

By arrangement between the State Board of Health and the Nemours Foundation, the Board is assuming responsibility for case-finding, diagnosis, after-care, and field work generally. The Foundation undertakes the costs of treatment. An account of the Foundation's plan is published elsewhere in this issue. For the present, it has agreed to defray costs of treatment up to \$75 per case for cases which, in the judgment of the clinician, are likely to be permanently worse off if treatment is delayed until the Nemours Foundation opens its projected hospital. Costs in excess of \$75 are paid by the Levy Courts, or are absorbed by the hospital concerned.

State diagnostic clinics are held monthly at Kent General Hospital, Dover; Beebe Hospital, Lewes; and at the State Board of Health clinic, Seaford. Personnel consists of an orthopedic consultant, a pediatric or other consultant where indicated, the state crippled children's nursing supervisor, the district pub-

*Director, Crippled Children's Service, Delaware State Board of Health.

lie health nurse, and the secretary of the Crippled Children's Service. An average of 15 cases is seen at each clinic. Practitioners are welcome visitors. Following each clinic, a report is sent to each physician on any of his referrals seen at that clinic.

For cases which otherwise would have no way of coming, transportation to clinics is provided by neighbors and by volunteers from community clubs and organizations.

The cost of x-rays taken at clinics is defrayed by the State Board of Health. Disposition of the case thereafter is up to the clinician.

The Service arranges the hospitalization of such cases as require it, and sees to it that the instructions of the physician are carried out in the home. The crippled children's nurses are skilled in the adjustment of appliances and in physiotherapy. If during convalescence foster-home care is needed following hospitalization but prior to the return of the patient to his home, this is also arranged by the Crippled Children's Service through public or private social agencies of the state.

A certain number of cases require repeated dressing following their discharge from hospitals. In the past, the family physician has been asked to supply dressing materials as well as his services. Beginning this summer, a small allotment has been made to purchase bandaging materials to replace those which the family physician has used on such cases from his personal supplies. Since no recompense may be given a physician from state funds for his services without laying such an arrangement open to the criticism of "state medicine," the State Board of Health feels that the least it can offer such a physician is this replacement of his dressing materials.

State funds are not available for appliances and casts. These costs are accordingly absorbed by the hospitals and agencies, or are undertaken by civic organizations as a result of arrangements by the Crippled Children's Service.

The crippled children's program is limited as to funds. Although the Social Security Act appropriates \$23,000 annually for a Delaware crippled children's program, only about \$5,000 of this can be matched. This is because funds cited for matching must be expended by the state agency, whereas at the present time

practically all of the funds spent on crippled children in this state are expended by private agencies. For example, it would be necessary for the state law to be altered regarding Levy Court appropriations to hospitals, so that a portion of their funds could be given to the State Board of Health for the Crippled Children's Service, in order that such funds now being expended on crippled children could serve to match Federal funds. Or else the hospitals and other agencies supported by public funds would have to make over some of those funds completely to the State Board of Health, without assurance that the funds would be spent in the institution which thus sacrificed them.

Even if this arrangement were possible, the State Board of Health's policy is opposed to entering the field of treatment. Consequently, Delaware crippled children are not receiving the benefit of \$17,000 a year which is appropriated for their use by the Social Security Act. The balance available to us in Washington was last reported at \$62,000. Apparently, this will eventually revert to the Treasury of the United States for other expenditure, or will be reallocated by the Children's Bureau so as to be used by other states than Delaware for crippled children's services. At the present time, there seems no prospect of Delaware obtaining these funds. Fortunately, the resources of the Nemours Foundation will eventually more than offset this loss.

PREVENTION STRESSED

Prevention of crippling is a major function of the state crippled children's program. Medical literature shows that many birth injuries can be prevented by adequate prenatal and obstetrical care. The State Board of Health refers all prenatals to physicians or hospitals, regardless of the patient's economic status. Crippling from birth injury and from congenital deformity can be minimized in most instances by early neonatal treatment. Such cases are also referred to physicians, regardless of economic status, with the understanding that the indigent ones may be referred to the state crippled children's diagnostic clinics at the physician's request.

For prevention of crippling from disease there are two approaches—through the professional man and through the public. The

Nemours Foundation plans to undertake activity in the first field, by offering lecturers or perhaps courses of lectures on crippling conditions to the State and County Medical Societies. The State Board of Health is undertaking the public approach, through its field staff and its publicity. An illustration of this is the leaflet published in June, a copy of which was mailed to every physician in the state, entitled "Infantile Paralysis: What a Parent Should Know and Do About It." These are being left at every home visited by the 27 public health nurses in Delaware through the entire summer; they are also available at clinics, hospitals, exhibits, and meetings of organizations.

Attention might be here directed to the last paragraph of this leaflet. In order that orthopedic care may be available to minimize the crippling from infantile paralysis, the two orthopedic surgeons in the state (Dr. Irvine M. Flinn, Jr., and Dr. A. R. Shands, Jr.) have placed their services at the disposal of the physicians of the state as consultants in every case of polio which is reported. It is hoped that every physician to whose lot falls the care of such a case will freely and fully avail himself and his patient of this opportunity.

To develop a program as complete and as effective as possible, a state Crippled Children's Advisory Committee has been formed. It consists of Dr. Benjamin F. Burton, Jr., Mrs. Louis A. Drexler, Dr. Irvine M. Flinn, Jr., Mr. J. C. Messner, Mrs. Charles F. Richards, Dr. A. R. Shands, Jr., Dr. Joseph B. Waples, Jr., and Mr. C. Rollin Zane, and constitutes as representative and interested a group of advisers as can be found in Delaware. It meets periodically to consider objectives and difficulties of the program, and makes recommendations regarding any aspects of the services which seem subject to betterment. Meeting in April, the committee recommended that a doctor or nurse examine each newborn not less than 10 or more than 21 days after birth, and state, when recording the name, whether or not deformity is present. To further this, it suggested that the naming period be made a certain number of days after birth, rather than that it be limited to the end of the month. This is a modification of the vital statistics law in Kentucky and other states

which requires that a birth report include a report of a congenital deformity.

The fundamental purpose of this entire program is to brighten the future of every Delaware crippled children as far as human ingenuity can contrive it. Suggestions and criticism are always welcome.

THE NEMOURS FOUNDATION FOR CRIPPLED CHILDREN

ALFRED RIVES SHANDS, JR., M. D.*

Wilmington, Del.

The problem of the crippled child has long been of interest but only in recent years has this interest been as widespread as it is today. The crippled children now have a chance for physical and social restoration which years ago was not possible.

In the early 19th century the fitting and wearing of braces was the extent of the medical treatment. In 1831 a German surgeon by the name of Stromeyer demonstrated that the cutting of a tendon about a contracted joint was a worthwhile surgical procedure and thus began the modern operative era for cripples. An English physician, W. J. Little, traveled to Hanover, Germany, in 1837, and allowed Doctor Stromeyer to cut the contracted heel cord in one of his own deformed feet. The improvement in walking was so marked that he became intensely interested in the problem of the cripple. Due largely to his efforts upon his return to England the Orthopaedic Institute of London (later the Royal National Orthopaedic Hospital) was founded, which stands today as one of the finest institutions for the medical care of cripples in the world. Thus was started the modern hospital era for the crippled child.

In 1852 a Flemish surgeon, Mathijsen, demonstrated the usefulness of plaster of Paris bandages in making casts for the support of the body and extremities. This marked another epoch in the treatment of crippled children. Plaster of Paris bandages remain today the most useful single item in the therapeutic armamentarium of the orthopedic surgeon.

With the demonstration in 1866 by Lord Lister of operations without infection the era of aseptic surgery began. Crooked bones and

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deformed joints could be safely operated on and straightened without the dangers of osteomyelitis, purulent arthritis, and septicemia, with sometimes death.

The first orthopaedic hospital to be established in this country was the Hospital for Ruptured and Crippled in 1863 in New York City. However, a ward devoted exclusively to the care of crippled children had been opened in the House of The Good Samaritan in Boston one year previously.

In 1922 the first Shriners' Hospital for Crippled Children was opened in Shreveport, Louisiana, which was rapidly followed by the building of 14 other similar units distributed over the United States and Canada. This project of the national Masonic Shrine has been called the greatest single piece of humanitarian work in modern times. With the opening of these hospitals a tremendous stimulus was given everywhere to the interest in the care of the crippled child. The civic clubs, notably the Rotary and Kiwanis, became crippled-child conscious and effected national programs for the aid of the physically handicapped.

In 1935 the era of the government's participation in the care of crippled children began. In the Children's Bureau of the Department of Labor in Washington there was established a crippled children's division to administer the \$2,850,000 yearly Social Security fund appropriated by Congress. These moneys are being spent for the diagnosis and treatment of diseases causing crippling in childhood. At the present there is no state in the Union which does not have Federal funds available for the treatment of the crippled child. In practically every state there is now an adequate number of hospital beds for crippled children.

Mr. Alfred I. du Pont, during his lifetime, was deeply interested in the problem of the physically handicapped. After his death on April 29, 1935, his wishes to establish a Foundation and to build an institution for the care and treatment of crippled children were made known through his will. On September 2, 1936, the Nemours Foundation was incorporated for the purpose of carrying out the terms of the will. The Trustees of the Foundation, as designated, were his widow, Mrs. Alfred I. du Pont; her brother, Mr. Edward

Ball, and Mr. du Pont's son-in-law, Col. Reginald S. Huidekoper.

A Medical Advisory Board was appointed by the trustees and on March 5, 1937 the first meeting was held in Epping Forest on the St. Johns River near Jacksonville, Fla. The members of this Board are: Dr. Thomas R. Brown, Associate Professor of Medicine, Johns Hopkins University, Baltimore, chairman; Dr. Robert B. Osgood, Professor Emeritus of Orthopaedic Surgery, Harvard University, Boston, secretary; Dr. Philip D. Wilson, Clinical Professor of Orthopaedic Surgery, Columbia University School of Medicine and Chief Surgeon of the Hospital for Ruptured and Crippled, New York City; Dr. George E. Bennett, Associate Professor of Orthopaedic Surgery, Johns Hopkins University, Baltimore; Dr. deWitt B. Casler, Associate Professor of Gynecology, Johns Hopkins University, Baltimore; Dr. William T. Graham, Professor of Orthopaedic Surgery, Medical College of Virginia, Richmond; Dr. Beverley R. Tucker, Professor Emeritus of Neurology and Psychiatry, Medical College of Virginia, Richmond; Dr. Michael Hoke, formerly Chief Surgeon at Warm Springs Foundation, Atlanta. In June 1937 the author, who was then an Associate Professor of Surgery in charge of Orthopaedics at Duke University School of Medicine, was appointed Medical Director of the Foundation.

It is now hoped that, with the establishing of the Nemours Foundation and the building of an institution for crippled children another epoch is being made in the history of the care of the physically handicapped child.

The Medical Advisory Board of the Foundation have decided on a four-point program: (1) medical care of the crippled child; (2) education of the crippled child; (3) research on problems relating to the crippled child; and (4) postgraduate instruction for persons interested in this field of work.

1. *Medical Care for the Crippled Child.* This phase of the program is to start with the building of a 100-bed hospital within the grounds of the Nemours Estate, three miles from the center of Wilmington. Plans have been approved and ground will be broken this October. The tentative date for the opening of this institution is the fall of 1939.

A brief description of the hospital is as follows: the initial building will have, on the first floor, administrative offices, an out-patient clinic, an x-ray department, two school rooms and boys' and girls' wards which will face south and open on a wide grass terrace. On the second floor will be the operating rooms, a ward for colored children, an isolation and observation ward, internes' quarters, staff dining rooms, and a museum. On the first floor in a separate wing of the building adjacent to the wards, will be the physical therapy department and therapeutic pool, an auditorium-gymnasium and two additional school rooms. On the second floor of this wing will be a twelve-room laboratory section. The nurses' quarters will be on the third floor. In the basement will be the storage rooms, the kitchen services, dining rooms and locker rooms for the hospital help. There will be a separate building to house the heating plant and laundry.

Children up to the age of 16 years will be admitted to the hospital but may be kept in the institution for educational purposes to an older age if necessary.

2. *Education of the Crippled Child.* After the hospital is opened it is proposed to build several cottages, separate from the hospital, which will house the convalescent school children. A school building will be erected later. In the educational program emphasis is to be placed upon the vocational education of the child over 14 years of age. Following this training it is hoped that it will be possible to find permanent employment for these children. All types of training will be offered, such as dress-making, hat-making, weaving and basketry for the girls, and shoe-making, watch and jewelry-making, upholstering, leather craft, printing and commercial art for the boys. The type of vocational education will depend upon the child's physical handicap and natural abilities. Primary and secondary school education will be given to the younger children.

3. *Research.* The research program will include both laboratory and clinical problems. The original laboratories will be for biochemistry and bacteriology, with facilities for pa-

thology. These will be staffed by a personnel particularly interested in research problems. A certain number of hospital beds will be available for the research division, so that the clinical and laboratory work may be coordinated, to their mutual advantage.

In addition, it is hoped that the research program may be extended to include certain psychological problems of the crippled child. For the coming year four research fellowships have been established in selected medical centers for the study of problems directly related to crippling diseases in childhood.

4. *Postgraduate Instruction.* Courses of instruction for those in the various fields of crippled children's work will be established as soon as warranted by the organization of the hospital and the institution. There will be instruction in the nursing care, in the problems relating to social service, physical therapy, and teaching of the handicapped. With the opening of the hospital there will be a group of younger doctors in constant attendance, learning the medical and surgical care of the crippled child.

At the beginning only crippled children from the state of Delaware will be admitted; it has been estimated at this time that there are approximately 200 in need of hospital care. It is thought that eventually 25 active hospital beds and 50 convalescent beds will be sufficient to meet the needs of this state.

The question has been asked—how will this institution differ from other crippled children's hospitals? Its chief difference from most similar institutions will be the emphasis upon vocational education of the crippled child and upon research.

If the vision of Mr. Alfred I. du Pont and the plans of the Medical Advisory Board become realities, nothing can prevent the activities of the Nemours Foundation from exerting a tremendous progressive influence on this field of work, and the institution from becoming one of the greatest crippled children's centers in our country. When these plans become realities another era in the care of the crippled child will have begun.

503 Delaware Trust Building.

PNEUMONIA CONTROL

ARTHUR C. JOST, M. D.*

Dover, Del.

In the fall of 1937 the State Board of Health offered to aid practitioners in an effort to reduce the mortality from lobar pneumonia. Technicians throughout the state were given the opportunity to familiarize themselves with the Neufeld typing method. Typing sera was supplied hospital laboratories, and typing fees guaranteed the laboratories for indigent cases. Therapeutic sera was made available.

There was a very gratifying response, a decided increase in the number of typing examinations made, and therapeutic sera was used in considerably more cases than previously. Figures are too small to warrant any conclusions or statistical comparisons, but experience elsewhere supports the belief that Delaware physicians can, by the prompt typing of sputum and early administration of the proper therapeutic sera, reduce the mortality from pneumonia. The pneumonia rate for the twelve months, July 1937 to June 1938, was 80.8 per 100,000 population.

*Executive Secretary, Delaware State Board of Health.

THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

Its Beginnings, Growth and Plans

RICHARD C. BECKETT, B. S.*

Dover, Del.

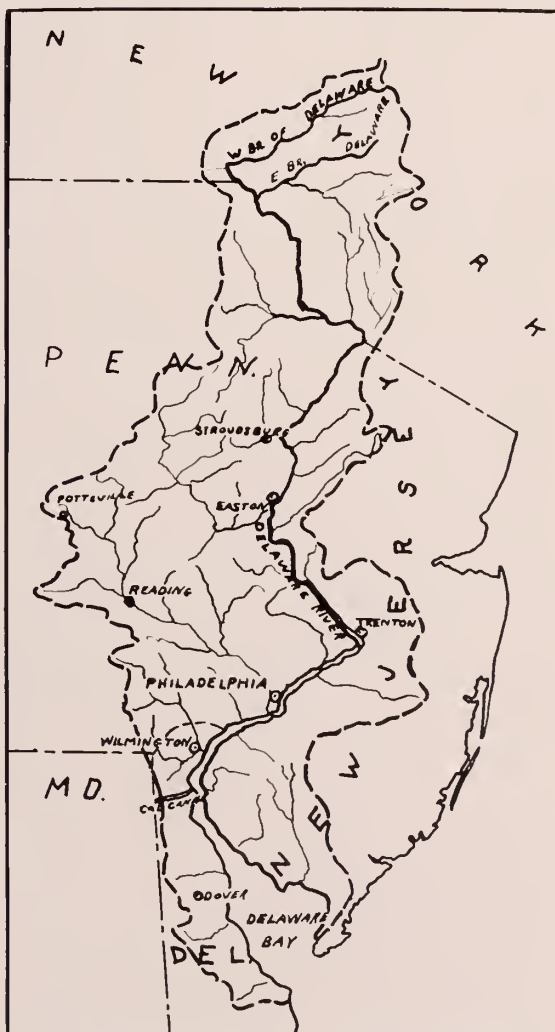
A few years ago a group of citizens realizing the increasing complexity of our government felt that there should be some governmental agency which could act as a liaison body between various states which had certain problems in common. They felt that there were an increasing number of problems slightly too large for one state to handle and yet of not sufficient nation-wide importance for the Federal government to handle. Back of this also was the feeling, I believe, that centralization of government in this country would be further avoided.

As an outgrowth of this idea has come the movement to establish Commissions on Interstate Cooperation which are commissions composed of five senators, five representatives and

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five appointees of the Governor. Such commissions are empowered to deal with problems that concern adjoining states, and it is an attempt to provide uniformity of intercourse between the states and, in addition, to provide agencies which can deal with other state commissions and also can report back to the state legislatures which created them. Such matters as crime control effecting two or three contiguous states, traffic laws, the uses of streams, etc., might become subjects for mediation under this set-up. Furthermore, such commissions might assist in drawing up compacts between these various states and the Federal government and thus facilitate, in at least as far as time is concerned, action on such compacts.

In order to have a clearing house for the work done by these various state commissions, of which there are now seventeen, the Council



Delaware River Basin—an Empire in itself

of State Governments was formed, which is at the present time, as I understand it, being financed by the Spelman fund. The Council of State Governments, of which Mr. Henry W. Toll is Executive Secretary, is also the clearing house for such agencies as the American Legislators' Association, the National Association of Attorneys-General, and the National Association of Secretaries of State, and other similar organizations.

WHAT TWO STATES ACCOMPLISHED

In order to bring out Delaware's interest in any such commission, let me briefly review what has occurred between two neighboring states dealing with a joint problem and which, at least, touches work with which I am familiar. In 1930, a very elaborate survey of the Brandywine Creek was made in conjunction with the Pennsylvania Sanitary Water Board and the State Board of Health of Delaware, with Dr. Willim Rudolfs in charge. This survey was made of the whole Brandywine Creek to determine all the sources of pollution and methods of abatement. As a result of this survey, improvements were made to the West Chester and Dowingtown sewage treatment plants, several paper companies installed treatment plants for their wastes, the du Pont Company and the Levy Court installed interceptor sewers to bring certain wastes down below the waterworks intake, and various other improvements reducing the load on the Brandywine Creek have been made. You will understand that the major portion of the work was done by the state of Pennsylvania but that the state of Delaware received the major share of the benefit simply because nearly one-half of our population, namely, the city of Wilmington, derives its water supply from the Brandywine Creek. This is a very good illustration of a cooperative approach to a problem without any legal status attached to it.

THE BIRTH OF AN IDEA

Back in 1936 groups of individuals in the four states, New York, New Jersey, Pennsylvania and Delaware became convinced that the problem of the full use of the Delaware River Basin, both as to its water supply possibilities, its recreational uses, and other purposes, might be more fully developed and protected through the organization of a Commis-

sion on the Delaware River Basin. Said Commission to be made up of representatives of these various Interstate Commissions on Cooperation of these states in so far as commissions had been set up. Accordingly, at a meeting held on April 3, 1936, the Interstate Commission on the Delaware River Basin was formed and a new experiment started in the control of an area which might be contrasted in size and population to many European countries. As a matter of fact, the Delaware River Basin and all of its tributaries covers a territory as large as Belgium and has a population of five million spread over an area of twelve thousand square miles. Here was an opportunity to apply "planning" on a large scale so that those who are to enjoy the use of this magnificent valley could have something to say in its future development and could check devastation, that has occurred for generations, namely, through reforestation and the pollution of the waters of this Basin.

MAKE-UP OF THE COMMISSION

This Commission is composed of nine members from the legally established Commissions on Interstate Commissions on Cooperation of Pennsylvania, New Jersey and New York, as well as a representative of the State Planning Boards of the three states, namely, Pennsylvania, New Jersey and New York.

Delaware's appointees originally designated by Governor Buck were Walter Dent Smith, former Secretary of State; Charles H. Gant, Executive Secretary of the Board of Harbor Commissioners, and the writer. Since the original appointments, an effort was made during the last legislature to establish an Interstate Commission on Cooperation in order that Delaware might be officially represented the same as the other three states and further would assume its proportionate share of the budget necessary for the carrying on of the parent organization. Action failed at this Session. However, the appointments made by Governor McMullen parallel the pattern set up by the other states, in that Senator Norris M. Wright was appointed as a representative of the Senate; Chauncey P. Holcomb, a representative of the House of Representatives, along with Mr. Gant and the writer.

One of the pressing problems and the one which the Commission is most anxious to solve

is the question of pollution of the Delaware River and its tributaries by both municipal and industrial wastes. Many attempts have been made to solve this problem by individual state action but each state has been up against a barrier that if the other states would take action they would take action themselves. Some work, however, has been accomplished through voluntary joint action by the individual states.

When we shift to the grossly polluted Delaware River we have a problem that concerns four states, namely, New York, New Jersey, Pennsylvania and Delaware. For fifty years these interested states have been trying to solve the problem of the pollution of the Delaware River by individual state action, with the result that very little has been accomplished because one state could not see why it should clean up if the other state facing it on the other side of the river did not act. Here then is a good illustration of a problem which fits in nicely with the Commissions on Interstate Cooperation, in that if all four states create such commissions there is a much greater possibility of obtaining uniformity in laws relating to pollution, and further there is the possibility of setting up a compact to deal with this particular problem which as a governmental entity could possibly come under a future public works program just as cities, counties and states have done in the previous Public Works Act.

Since the birth of the Commission, various sub-committees on planning, committees on the quality of water and on the quantity of water have been appointed and the preparation of maps and standards has gone ahead. The committee on quality, which is made up of the chief engineers of the four states, has definitely prepared pollution standards for the whole Delaware River and its tributaries. The whole Basin has been divided into four zones and each zone has been treated with due regard to the recreational uses of the water and further the more important fact that such waters must be used as the raw water supplies of various communities on this water shed and even without the water shed. For instance, a recent decision of the U. S. Supreme Court gives the city of New York the power to take a stated number million of gallons of water

per day out of this water shed to be used by the city of New York and then discharged eventually into other waters. The city of Philadelphia must soon come to the Delaware River as an additional source of raw water supply, and of course other smaller communities are already taking their water supplies from this Basin.

REPORT OF QUALITY COMMITTEE

The recommendations of the Quality Committee have been submitted to the state Departments of Health of the four states and these have been accepted by the four states concerned. This means that for the first time in the history of the Delaware River Basin the four states forming this Basin have formally agreed on the pollution standards for the whole Basin and have officially adopted them.

The Quality Committee has also recommended a time schedule and this in turn has been adopted by the full Commission. This time schedule is shown below.

INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN
CONSTRUCTION SCHEDULE
for

MUNICIPAL SEWAGE TREATMENT FACILITIES

The following table lists, by zones, the type of existing sewage treatment facilities for each municipality now discharging domestic sewage in the interstate Delaware River together with the time schedule for municipal construction projects necessary to maintain and improve the quality of the Delaware River in accordance with the minimum requirements established by the Interstate Commission and agreed to by the State Departments of Health of Delaware, New Jersey, New York and Pennsylvania.

Municipality	Type of Existing Sewage Treatment (Facilities)	Requirements Regarding Additional Sewage Treatment (Type)*	Completion Date
ZONE 1			
Hancock, N. Y.	None	Complete	June 1, 1940
Port Jervis, N. Y. ¹	None	Complete	June 1, 1940
Belvidere, N. J. ²	None	Complete	June 1, 1940
Easton, Penna.	Primary	Complete	Jan. 1, 1942
Phillipsburg, N. J.	Primary	Complete	Jan. 1, 1942
Bethlehem, Penna.	Screens	Complete	Jan. 1, 1942
ZONE 2			
Trenton, N. J.	Primary	Complete	Jan. 1, 1944
Florence, N. J.	Primary	Complete	Jan. 1, 1944
Burlington, N. J.	Primary	Complete	Jan. 1, 1944
Bristol, Penna.	Primary	Complete	Jan. 1, 1944
Beverly, N. J.	Primary	Complete	Jan. 1, 1944
Riverside, N. J.	Primary	Complete	Jan. 1, 1944
ZONE 3			
Riverton, N. J.	None	Primary	June 1, 1940
Philadelphia, Pa.	Primary for about 20% of sewage flow	Primary for 80% flow	Jan. 1, 1943
Camden, N. J.	Primary for about 20% of sewage flow	Primary for 80% flow	Jan. 1, 1943
Chester, Penna.	None	Primary	Jan. 1, 1947
Central Dela. Co. Communities, Pa.	None	Primary	Jan. 1, 1940
Gloucester, N. J.	None	Primary	Jan. 1, 1940
Woodbury, N. J.	None	Primary	Jan. 1, 1940
Lower Dela. Co. Communities, Pa.	None	Primary	Jan. 1, 1940

ZONE 4			
Wilmington, Del.	None	Primary	Jan. 1, 1945
New Castle, Del.	None	Primary	Jan. 1, 1943
Bellefonte, Del.	None	Primary	Jan. 1, 1945
Delaware City, Del.	None	Primary	Jan. 1, 1945
Salem, N. J.	None	Primary	Jan. 1, 1940

¹ This construction must be done under the decree of the U. S. Supreme Court in the Delaware River Diversion Case. However, it was agreed that the Port Jervis situation should be discussed with New York City Board of Water Supply officials to see if they could not be prevailed upon to complete the required works by June 1, 1940.

² There is no recognized sewerage system in Belvidere. However, the New Jersey Department of Health will investigate conditions and if sewerage and sewage treatment is required, construction thereof is to be completed by June 1, 1940.

You will notice that in some cases complete treatment is called for because of the prejudicial effect of the present pollution as far as existing water supplies are concerned, while in other cases primary treatment only is called for in the present schedule, due to the enormous volume of dilution available at the point of discharge of the wastes. The Quality Committee is now working on the question of industrial wastes and this will mean an elaborate survey of the industries located on the river and its tributaries and the setting up of standards for such industrial wastes.

Since the adoption of the standards certain municipalities have been cited to show cause why their sewage treatment program has not been advancing. Here, for the first time, is an agency which will be a distinct aid to the various states in their local problems, in that the individual state can have the assurance that the other states are bound by the same standards.

WHY AN INTERSTATE COMMISSION FOR DELAWARE

Certain questions naturally come up as to what benefit Delaware would derive by forming a Commission on Interstate Cooperation and joining with these other three states on the same basis as these three other states have already done. Delaware's budget will be approximately \$3,000 out of the total budget of \$30,000 all of which, with the exception of Delaware's share, is now being assumed by appropriations from the other three states.

Some of the advantages as far as the state of Delaware is concerned might be listed as follows:

In the first place, Delaware would be a participant in the first unified survey of the whole Delaware River Basin; for a small contribution annually, she would be the recipient of the engineering services contributed by the Commission set-up for this survey, which in

turn would be re-enforced by the consulting engineering services donated by the Federal government and loaned particularly from the Water Resources Committee of the National Resources Committee. Such a program would provide for a logical cleaning up of the stream, starting at the upper waters but at the same time establishing certain minimum treatment standards for both industrial and municipal wastes. Further, it is possible that the states, by entering into a compact with Congress, might be one of the favored areas to receive grants-in-aid from a comprehensive public works program as has been done by cities, counties and states. I believe the shipping interests, the fish and game groups, and those interested in the oyster industry would feel that this is a small insurance premium to pay for the progressive cleaning up of a body of water which serves an area of some twelve thousand square miles and a population of approximately five million people. In addition to these other interests are those concerned with the use of the water by municipalities for drinking water purposes and for the ever increasing use of such water sheds for recreational facilities. The above is merely a recital of some of the benefits that would accrue from the workings of simply one independent agency set up by the Commissions on Interstate Cooperation, namely, the Interstate Commission on the Delaware River Basin.

Taking a broader view, the establishment of a Commission on Interstate Cooperation would mean that there would be an official agency to deal with other states on the question of uniform crime laws and penalties, on planning, traffic control, milk control and various other problems that arise between states that are contiguous geographically.

SYPHILIS IN DELAWARE

T. E. HYNSON, M. D., and J. R. BECK, M. D.*
Dover, Del.

Delaware, with a population of only 251,000, half of which is urban and half rural, is a state where syphilis can be controlled if it is possible anywhere in the United States.

It is estimated that the incidence of syphilis in the white race is somewhat less than 5%, and between 25 and 30% in the colored, with

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little difference between the rural and urban areas. This means that there are approximately 10,000 white cases, and since the colored population is about one-sixth of the white, 9,000 colored—a total of 19,000 cases.

It is neither the primary duty nor the desire of the public health authorities to treat syphilis, gonorrhoea or any other venereal disease. Their duties should consist of the investigation of sources of infection and of seeing that every individual having one of these diseases in an infectious or potentially infectious stage is treated regularly and adequately. Because of the lack of adequate provision for treatment, it has been necessary to reverse these objectives. There is nothing to be gained by finding an infectious case if adequate treatment is not available.

In Delaware an attempt is being made to see that treatment is provided for those in the lower economic classes where the venereal diseases are the most prevalent. The four Wilmington hospitals have enlarged their clinics to provide for the urban areas and the State Board of Health has opened clinics at Newark, Smyrna, Seaford and Frankford within the past year. Any indigent person with syphilis residing beyond a ten-mile radius from a clinic can be treated by his own physician, the State Board of Health supplying the drugs and paying \$1.00 per dose of neoarsphenamine and \$.50 for bismuth, if the case is properly reported and permission asked for and obtained from the Department. In addition, neoarsphenamine and bismuth are furnished for the treatment of any case upon proper request by the physician. Treatments given in the clinics have increased greatly in the past year as shown by the following:

	1936-37	1937-38	% Increase
New cases reported	1,990	2,932	47.4%
Doses of arsphenamine.....	9,331	17,311	85.5%
Doses of bismuth and mercury	8,026	17,524	110.8%
Number of Wassermanns	12,058	17,263	43.3%
Number of visits to delinquents & contacts.....	3,568	5,685	59.4%

There are many syphilitics who, while not indigent, cannot pay specialist fees of \$5.00 or \$10.00 per injection of neoarsphenamine. These patients could pay a regular office visit, however, and with the state furnishing the necessary drugs for these marginal cases, practitioners should be willing to treat them.

This State Board has no desire to have this group become clinic minded.

Any well-trained general practitioner can readily equip himself to carry out the routine treatment of early syphilis, though he may well avoid the complicated tertiary case. He can acquaint himself with the modern methods of treatment by study of recent publications of the U. S. Public Health Service and other authorities. The physicians engaged in the operation of the venereal disease clinics are always glad to assist him in every possible way. The actual technic of administration is no more difficult than many procedures he performs daily, but he must always remember that he is dealing with toxic drugs, that reactions do occur, but can usually be prevented by proper technic and study of the individual patient.

Many physicians have difficulty in holding patients under regular treatment for the necessary year or more. It is to be hoped that with the increased public interest and knowledge of syphilis this situation will improve. It is one of the functions of the State Board of Health to see that infectious cases are kept under regular treatment for the period necessary to remove all danger of relapse. The public health authorities have no desire to know the name of any person receiving regular treatment, but if he becomes delinquent it is their duty to see that he returns to regular treatment as soon as possible. The most satisfactory method for the patient, the physician and the public interest is for the case to be reported by number only when diagnosed, together with such other data as is needed for its statistical value, as age, sex, race, stage and duration of the disease. So long as the patient receives regular treatment he is known only by this number, but if he becomes delinquent he is to be reported by name and will be followed up by a representative of the Board of Health, using the most confidential means possible, the cause of the delinquency ascertained and an effort made to secure his return to his physician. If he cannot continue private treatment because of inability to pay arrangements may be made *with the co-operation and approval of the physician* for him to be treated at a clinic. The mere knowledge that his name will not be reported so long

as he receives regular treatment is a strong factor in holding the patient.

It is planned to revise the method of reporting cases of venereal disease in such a manner as to provide useful information and to be satisfactory to both the practicing physician and the Board of Health. Our present system is inadequate. Very few physicians report on the regular form and few Wassermann slips are sufficiently filled out to be useful. In April 1938, a typical month, of 531 specimens sent in by physicians, 104 were positive. Of these, 5 were properly reported. We thought that 42 were from new cases. The remaining 57 did not have sufficient data to even hazard a guess.

The general practitioner sees most of the early cases of syphilis and gonorrhea and has the best opportunity to secure information as to the source of infection and those subsequently exposed. Since he usually does not want to have his patient questioned by an investigator it is his duty to secure the names and addresses of the alleged source and other contacts and either see that they are examined and treated, if necessary, or to turn this information over to the public health authorities. It has been possible to trace the contacts of a large number of our clinic patients and bring many sources under treatment, but we can do nothing in the higher economic levels without the cooperation of the physician. It is unnecessary for the investigator to know the source of the information, and only a guilty conscience gives the name of the informant to the contact. It is preferable that the examination in such a case be made by the physician and a report made to the health authorities.

If a physician wishes to refer a patient to a clinic for treatment or examination, he should report the name and address to the Board of Health, as well as give the patient a referral slip. We frequently find cases who have been referred, but, their active lesions having healed, do not report and are later picked up as the source of the infection of another case.

The physicians of the state are becoming more syphilis minded, and if they would become more epidemiologically conscious, greater strides in syphilis control could be attained.

SERODIAGNOSIS: RESULTS IN LATEST EVALUATION STUDY

ROWLAND D. HERDMAN, B. S.*

Dover, Del.

The syphilis control program has greatly increased the work in this laboratory. In the last fiscal year 14,754 samples of blood and spinal fluids were examined by Kolmer quantitative and Kahn standard test for syphilis. This is an increase of 52% over the previous year.

During this past winter, this laboratory took advantage of the opportunity which was offered by the Division of Venereal Diseases of U. S. P. Health Service to all state and branch laboratories to collaborate in the evaluation of sero-diagnostic tests for syphilis. Fifty-four laboratories took part in this project. The Kahn and Kolmer tests were evaluated for sensitivity and specificity by making tests on approximately 300 samples of blood and comparing our results with the results obtained by the originators of these tests. By sensitivity is meant the ability of the tests to react with samples of blood from syphilitic individuals. Specificity means free from false positive reactions from non-syphilitic individuals. This laboratory received an excellent rating in both of these tests. We checked Dr. Kolmer's results in specificity exactly, and were but 0.2 off on sensitivity. Dr. Kolmer tested 207 samples of blood from known syphilitics and received a sensitivity rating of 78.2. This laboratory tested 204 samples of blood from known syphilitics and received a sensitivity rating of 78. In the specificity tests, Dr. Kolmer tested 100 samples of blood from non-syphilitics and received a rating of 100. This laboratory tested 92 samples of blood from non-syphilitics and also received a specificity rating of 100. In the evaluation of the Kahn test, Dr. Kahn's laboratory tested 200 samples of blood from known syphilitics and received a sensitivity rating of 70.5. This laboratory tested the same number of samples of blood (200) from known syphilitics and received a rating of 79.5. In the specificity tests, the control laboratory tested 96 sera from non-syphilitics and received a rating of 100. This laboratory tested 84 and received a rating of 98.8.

The above sensitivity results were mostly

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from tertiary and latent syphilis. Blood from secondary syphilis reacts in 100% of the cases. In primary syphilis the best test is a dark-field examination of serum from chancre for *Treponema Pallidum*. The Kahn and Wassermann tests do not react until from 10 days to eight weeks after the initial sore or chancre.

In the near future it is hoped that the various laboratories in this state will collaborate in the evaluation of their sero-diagnostic tests for syphilis.

A STUDY OF KENT COUNTY BIRTHS FOR THE YEAR 1937

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The following study of the births in Kent county in 1937 was begun January 1, 1937, with the idea in mind of having some tangible evidence of (1) the economic condition of the families who were having babies; (2) illegitimacy in different groups; (3) the number of children per family in each income group; (4) finding the number attended by physicians and those attended by midwives; (5) finding infant mortality in each group. This information was gathered by means of a card which was filled out by the nurse after visiting the home.

All births were divided into three income groups: those with incomes of less than \$500; those with incomes of between \$500 and \$1000; and those with incomes of more than \$1000. The incomes were estimated by public health nurses of experience, and while we do not claim that they are 100% accurate, we think they do divide the families having babies pretty definitely into three economic groups.

There were 602 families in this study. In reading the results you will notice that not all the items total 602. This is because one item or another was not answered on some of the cards, so the total in each case will be the number studied for this particular thing. Of 589 births on which we have definite record of the attendant at birth, 442 were attended by physicians and 147 by midwives. Of this group 462 were white and 127 colored. Of the 442 attended by physicians, 399 were white and 43 colored. Of the 147 attended by midwives, 63 were white and 84 colored.

The following information was compiled with the idea of comparing these three groups:

NUMBER OF FAMILIES	
In Under \$500 Group	126 or 20.9% of births
In \$500 to \$1000 Group	332 or 55.2% of births
In Over \$1000 Group	144 or 23.9% of births

COLOR		602
White	473 or 78.6%	
Colored	129 or 21.4%	
Under \$500 Group	{ White 56 or 43.7%	
	{ Colored 70 or 56.3%	
\$500 to \$1000 Group	{ White 275 or 83 %	
	{ Colored 57 or 17 %	
Over \$1000 Group	{ White 143 or 99.3%	
	{ Colored 1 or .7%	

ILLEGITIMACY	
Total—48 or 8.3%	
Under \$500 Group	{ White 9 or 16 %
	{ Colored 26 or 37 %
\$500 to \$1000 Group	{ White 3 or 1.1%
	{ Colored 10 or 18 %
Over \$1000 Group	{ White 0
	{ Colored 0

ATTENDANTS AT BIRTH	
Whole Group	{ Physicians 442 or 75%
	{ Midwives 147 or 25%
Under \$500 Group	
Physicians	{ 39 white or 71% of white
	{ 21 colored or 31.8% of colored
Midwives	{ 16 white or 29% of white
	{ 45 colored or 68.2% of colored

\$500 to \$1000 Group	
Physicians	{ 233 white or 85.6% of white
	{ 21 colored or 35% of colored
Midwives	{ 39 white or 14.4% of white
	{ 39 colored or 65% of colored
Over \$1000 Group	
Physicians	{ 127 white or 94% of white
	{ 1 colored or 100% of colored
Midwives	{ 8 white or 6% of white
	{ 0 colored

NUMBER OF CHILDREN PER FAMILY	
Average Number in Whole Group	2.94
Under \$500 Group	
Number of children per family	1 2 3 4 5 6 7 8 9 10 11
Number of families having the above number of children	40 22 8 12 11 8 4 3 2 0 1
Number of families	111
Number of children	340
Average number of children per family	3.06

\$500 to \$1000 Group	
Number of children per family	1 2 3 4 5 6 7 8 9 10 11 16 18
Number of families having the above number of children	114 58 39 28 34 19 14 11 9 3 3 1 1
Number of families	334
Number of children	1025
Average number of children per family	3.06

\$1000 and Over Group	
Number of children per family	1 2 3 4 5 6 7 8 9 10 11
Number of families having the above number of children	49 43 11 12 6 3 1 3 4 0 1
Number of families	133
Number of children	335
Average number of children per family	2.52

INFANT MORTALITY	
The infant mortality among the 1937 babies up to June 30, 1938, is as follows: 47 of the babies have died giving a general mortality for the group of 77.5. For the different groups it was:	
Under \$500 Group	19 deaths or a mortality of 150
\$500 to \$1000 Group	21 deaths or a mortality of 63
Over \$1000 Group	7 deaths or a mortality of 48.6

Infant Mortality according to Color:	
Under \$500 Group	
Colored	70 births 14 deaths or rate 200
White	56 births 5 deaths or rate 89
\$500 to \$1000 Group	
Colored	57 births 3 deaths or rate 53
White	275 births 18 deaths or rate 65
Over \$1000 Group	
Colored	1 birth 0 deaths or rate 0
White	143 births 7 deaths or rate 48.9

*Health officer, Kent County.

HOUSING AND PUBLIC HEALTH NURSING

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Dover, Del.

Each year more than 14,000 women in the United States die from causes connected with childbirth, leaving at least 35,000 children motherless. More than 75,000 infants are still-born, and more than 69,000 infants die during the first month of life. More than one-third of the births occur in families which are on relief or have total incomes, including home produce, of less than \$750 per year. These facts were the basis of a conference on "Better Care for Mothers and Babies" held in Washington, January 17th and 18th, 1938.

It should be unnecessary to point out further that poor housing is a contributing factor to the maternal and infant death rates, when so large a percentage of births occur in families having low incomes. Poor housing, insufficient food and clothing, inadequate medical care, etc., are all considered products of the low income.

A study made by Dr. Stiles gives us the following figures showing the relationship between the number of rooms occupied by a family and the infant mortality: In 1-room tenements the infant mortality rate is 219 per thousand; in 2-room tenements it is 157 per thousand; 3-room, 141; 4-room, 99. We recognize, of course, that these figures are fallacious in that other conditions than housing alone must be taken into consideration as influencing death rates. We cannot, however, fail to appreciate the overwhelming effects of poor housing.

Senate Report No. 935 of the 75th Congress on creating a United States Housing Authority gives the following figures on the City of Louisville: In Louisville there is one case of tuberculosis to every 436 persons. In District No. 1, of the four slum districts in the city there is one case of tuberculosis to every 226 persons, and in the four slum districts as a whole there is one case of tuberculosis to every 156. Compare this to one case for every 463 in the city as a whole, and the deduction is obvious.

A study made of poor and good housing

areas in Birmingham, Alabama, gives the following interesting information: The population of the crowded area was about 21,000 greater than that of the uncrowded area, even though there were 1,077 more acres in the latter than in the former. The general death rate in the poor area was 21.1; in the good area it was 12.2. The infant mortality rate in the poor area was 171 per thousand as compared with 89 per thousand in the good area. We may consider these figures as typical, because they are comparable with those given in other studies made in this country and in England.

It is the experience of the public health nurses in Delaware that the influence of poor housing retards convalescence and that it is often impossible properly to care for the sick in the ill-conditioned homes. Infant and maternal mortality rates are highest in areas where economic distress is greatest.

Communicable diseases, tuberculosis and acute infectious diseases have the highest incidence in poor housing areas. The close proximity of beds is one of the factors in the spread of respiratory diseases. The hazards in communicable diseases are increased because isolation is not possible.

Delaware hospitals tell of patients who left their care, entirely recovered, but the home conditions were such that a recurrence of pneumonia and rickets were inevitable. In many instances patients are required to remain in the hospital for long periods because of housing conditions which make it impossible for the case to receive care at home.

Below I have described a typical case of overcrowding with its attendant difficulties. A nurse visited a home to make her first visit to a newborn baby. She found the father, the mother and three children—ages eight years, seven years, and two days respectively—an aunt and her grown daughter and an infant, all living in a tumble-down, 4-room house. There were two very small bedrooms, a small kitchen and a small living room. The father, mother and infant slept in one bedroom, and the aunt, her daughter and infant in the other. The three children slept on the living room couch. The mother was twenty-eight years old and this was her seventh child. Three children had died in infancy from "bronchial

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trouble." The two-year-old child had had pneumonia twice. The family history revealed that this mother had a brother who died of tuberculosis in 1936.

The new babies maternal grandmother who was visiting at the home told the nurse that she had had twelve children, that three of these had died in infancy from "bronchial trouble" and that one, the brother mentioned above, had died of tuberculosis at nineteen.

Such situations as these confront us constantly. We recognize, study, and do our best to find ways of meeting them. We continue to offer our services to the physicians of Delaware, that we may be able to aid them whenever they need us.

DENTAL HYGIENE SERVICE FOR EXPECTANT MOTHER AND INFANT

MARGARET H. JEFFREYS, R. D. H.*

Dover, Del.

Since most authorities agree that nutritious food is largely responsible for the type of teeth a person will have throughout his lifetime, and because it is known that the teeth begin to form six months before birth, it is apparent that dental education must begin with the expectant mother.

Likewise, it is true (and case histories will confirm this fact) that many a mother sacrifices her own teeth during this period, for the child she is carrying draws heavily on the calcium supply in her system to form its teeth and bones. Without adequate dental attention, proper nutrition, and daily care, her teeth may suffer serious harm during these months. Here is definite evidence of the necessity for dental health education.

To reach all mothers during this period is a physical impossibility, but an effort has been made to work with those whom we can reach through our health centers. As a result, the prenatal classes and well-baby conferences have this year opened a new and very fertile field for the dental hygienist to give additional services to the citizens of Delaware.

Of the eight weekly classes attended by each group of expectant mothers, one is devoted to dental health education. Aided by posters, models of teeth and printed information, the dental hygienist gives instructions in home

care of the teeth which may be applied to any family regardless of their economic status. Periodic visits to the family dentist, or clinics, are urged, because expectant mothers should have their teeth examined immediately after becoming pregnant.

Many of the mothers who attend these conferences are older women; they are eager to know the facts which will prove most beneficial to their babies, but for themselves, they have little concern. They show little interest in their own teeth, since they have neglected them through life and know they will last but a little longer. They do not realize that if their own teeth were in good condition, they could better prepare their food for digestion, thereby rendering it more useful as building material for their expected child's bones and teeth.

The old tradition and superstition, handed down through the generations—that dental care during the prenatal period may effect the unborn child—has also prevented many mothers from seeking advice. So little is known by the public concerning the strides made in dentistry during the past several years that few people realize that science has discovered many new and worthwhile methods of treatment and that only in the exceptional case is it unwise for a mother to receive dental care throughout the entire pregnancy.

Time is an important factor and years of well-directed effort will be required before wholehearted cooperation may be obtained from all expectant mothers. Our hope for immediate results is with the young girl who marries soon after graduation from high school. With her several years of dental health education in the public schools for a background, she is much more enlightened than the older mother and is eager for information for herself and her child. The frequent contacts with the dentist during her school life have also removed her fear of treatment and she looks upon the dentist as her friend.

Well-baby conferences offer a splendid opportunity to the dental hygienist to convey to the mother the necessity of properly caring for her child's mouth. How timely is this advice, since its care has probably been as little considered as the mother's. Here, too,

*Director, Oral Hygiene, Delaware State Board of Health.

tradition has waged a successful campaign if we may judge results by the number who enter kindergarten and first grade with badly-decayed teeth, diseased gums and a physical resistance so low that the owner might have become the victim of innumerable childhood diseases.

How unfair to subject a child to such conditions at a time when he is passing through one of the most important formative stages of his life. Naturally, his physical and mental growth attained during this period determines his ability to absorb normal conditions in adulthood.

Parents of such children cannot be called ignorant; rather, they are uneducated in the necessity of giving proper emphasis to mouth hygiene. Dental decay knows no class distinction; it is an ever-present hazard in the lives of young and old, rich and poor alike. To all with whom our work brings us contact, we endeavor to impart knowledge of the latest approved preventive methods known to dental authorities.

If we are to save our future generations from becoming a toothless race, we must convince each mother that daily care is necessary; that periodic visits to the dentist are essential; and that food is of vital importance in building and maintaining good teeth. We must be so convincing that when a decision is to be made regarding dental care for Mary, whose mouth is in a deplorable condition, and a permanent wave because Mary's "best friend" has one, she will decide without question in favor of the former and not for a minute consider which deed would give her greater prestige among her neighbors. Such situations exist everywhere and are the old, old problem in sociology—when is a luxury not a necessity. It is human nature for persons to desire what others may have whether they can afford it or not, and any sacrifice will be made to gain that which they believe they must have. It is the general lack of understanding of what constitutes the finest in life.

At best, we can reach only a small proportion of mothers. This is discouraging when we realize that that which we have to give is of general good and not limited to individuals

or individual groups. Mouth hygiene has taken on new significance and has graduated to the front ranks of importance since so many ills have been traced to its neglect. We may hope that other avenues of approach may be found, that cooperation of other groups whose interests are akin to ours will in due time find young women ready to face motherhood lacking the many physical handicaps so common in the past.

Treatment of Parathyroid Tetany With Dihydrotachysterol

Cyril M. MacBryde, St. Louis (*Journal A. M. A.*, July 23, 1938), has treated seven female patients with chronic hypocalcemia and the symptoms of tetany with dihydrotachysterol. Five had been under observation and treatment for some years. Their ages ranged from 21 to 56. In six of the patients the tetany occurred following thyroid operations, while in the youngest patient it was of the so-called idiopathic type. The patients were completely relieved. The previous duration of the symptoms of tetany ranged from three and one-half to seventeen years, and all previous therapy had been comparatively ineffective except for the temporary relief afforded by injections of parathyroid extract and calcium. Three patients had developed resistance to the parathyroid extract. Bilateral cataracts had developed in three of these patients previous to the dihydrotachysterol therapy. Two patients had suffered frequent severe epileptiform convulsions. The convulsions did not recur after treatment with dihydrotachysterol. Approximately normal serum calcium levels are now being maintained in the seven patients with doses of from one-third to 1 cc. of dihydrotachysterol daily, supplemented daily by from 4 to 10 Gm. of calcium lactate or gluconate. At the present time, one patient has been free from symptoms for more than one year, one for seven months, two for more than six months and two for more than three months. No tolerance to the drug has been noted. In several cases smaller doses than those originally used seem sufficient to keep the blood calcium normal. In no case was it necessary to increase the dose.

EDITORIAL

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VOL. X AUGUST, 1938 No. 8

WATCHMAN! WHAT OF THE DAWN?

The individual about this time embarked on his profession as a physician is fortunate. He is about to take part in one of the most momentous changes, is to help in making one of the most momentous decisions, which have ever faced any organized professional group.

One reads his history incorrectly if he does not appreciate that the new era, when it shall have dawned, will as far exceed the old in its value, both to the server and the served, as present-day practice surpasses the technique of a hundred years ago. One marvels at the changes which have occurred in the past twenty or thirty years, a period well within the ken of many now actively engaged in practice. Do we realize that these very advances have sapped the foundations of the older system, have necessitated an entirely new adjustment in a world entirely altered? Formerly

medicine had relatively little to give; now there is almost an infinitude of potentialities and these are daily increasing. To name the problem—how it can be brought about that in equity and uprightness those who can and want to serve shall be able to assist those who desire and would profit from the service—is to appreciate that a solution must be found. Until that solution shall have been found, medicine shall not have come to its own. When it shall have been found, the greatest time in the history of medicine shall have arrived.

Who can doubt the ultimate outcome? There are living today persons of as fine ideals, of as scrupulous conscientiousness, of as unselfish devotion as have lived at any time in the world's history. Medicine is fortunate in that many of these are serving in its ranks, earning and deserving public acknowledgments of appreciation, determined and able to bring it about that the high repute of the medical profession shall remain undimmed.

So, he is fortunate who must help in making a decision on which so much must depend.

He cannot remain even in the indeterminate position of an interested observer on the sidelines. On each one individually the final responsibility shall rest, with the knowledge that each must have that no problem is answered except by the right solution. There will be conservatives, kin to those who opposed Hunter and Jenner and Lister. There will be individuals, ready and willing to sacrifice everything, even themselves, if only their crack-brained ideas shall obtain recognition. There will be the selfish, only concerned in the question of the extent to which their individual interests shall be served or jeopardized. There will be the idealist, living in a world of unrealities, whose schemes will be wholly unworkable in a practical everyday world. Somewhere between all these the way of truth and right and workability is to be found.

There is wisdom in the medical profession, sufficient not only to find but to follow the way, a way leading to a future as far surpassing in effectiveness and service and value anything heretofore known as present-day knowledge and technique surpasses that of the Middle Ages.

MISCELLANEOUS

"The Doctor"



The \$150,000 sculpticolor reproduction of the Sir Luke Fildes masterpiece "The Doctor," first shown by the Petrolagar Laboratories at Chicago's Century of Progress Exposition in 1933, was recently presented by its owners to the new Rosenwald Museum of Science and Industry in that city.

Following the two World's Fairs, "The Doctor" exhibit went on a tour of 50,000 miles and was viewed by over five million people in 18 principal cities throughout the country.

Designed to remind the public of the importance of the family physician, it required the full time of the late Chicago sculptor, John Paulding, and the noted artist, Rudolph Ingerle and a large corps of assistants, and took nearly a year to complete.

Clinical Aspects of Ultraviolet Therapy

Ethel M. Luce-Clausen, Rochester, N. Y. (*Journal A. M. A.*, July 23, 1938), concludes that the value of ultraviolet radiation in the prevention and cure of rickets and tetany is an accepted fact and has been proved indisputably to be both safe and specific if given under accepted conditions. In the treatment of fractures of bone, experimental evidence points to radiation as being of little if of any value. In the treatment of tuberculosis, no claims for the specificity of ultraviolet radiation have yet been substantiated, though many authors still regard irradiation as a useful aid to other forms of treatment. In the treatment of diseases of the skin of bacterial origin ultraviolet radiation may be of value, provided the organisms lie within the range to which the rays penetrate and are killed or attenuated by doses safe for the host. In other diseases

of the skin such as psoriasis, beneficial results might be due to the effect of radiation in producing hyperemia. Tumors of the skin have been produced in rats and mice with prolonged exposure to ultraviolet radiation, but the exposures needed are so far outside the range in general use by man, either in sun bathing or in the use of rays from artificial sources, that a warning of danger seems unnecessary. A caution, however, to avoid the abuse of radiation therapy, since its effects on the skin are imperfectly understood, is completely justified. More research is undoubtedly needed on the question of the photodynamic effect of radiation on the skin with special reference to the possible synthesis, in the skin, of the carcinogenic hydrocarbons.

BOOK REVIEWS

Injection Treatment of Varicose Veins and Hemorrhoids. By H. D. McPhesters, M. D., formerly Director Varicose Vein and Ulcer Clinic, Minneapolis General Hospital; and James K. Anderson, M. D., Instructor in Surgery, University of Minnesota. Pp. 315, with 82 illustrations. Cloth. Price, \$4.50. Philadelphia: F. A. Davis Company, 1938.

Because of their similar pathology, these two conditions are combined into one text. McPhesters continuing his work on varicose veins, which began in his previous two books, and Anderson adding the work on hemorrhoids. The book is written for the general practitioner, goes into great detail, and is a thoroughly dependable text.

Outline of Roentgen Diagnosis. By Leo C. Rigler, M. D., Professor of Radiology, University of Minnesota. Atlas Edition. Pp. 212, with 254 illustrations. Paper. Price, \$6.50. Philadelphia: J. B. Lippincott Company, 1938.

In this Outline the author has completed a unique book on roentgenology, really a synopsis of this very extensive subject. Dr. Rigler does not claim it to be a reference book. In my opinion, it is a manual of roentgenology and accomplishes that end very admirably. The Atlas is most complete and the cuts are excellent. The descriptions of the figures are comprehensive. There is a Student Edition, without the Atlas, which is priced at \$3.00.

The author has personally done much roentgenological research and has contributed many very vital and practical additions to this subject. It is with pleasure and profit that one studies this authentic manual.



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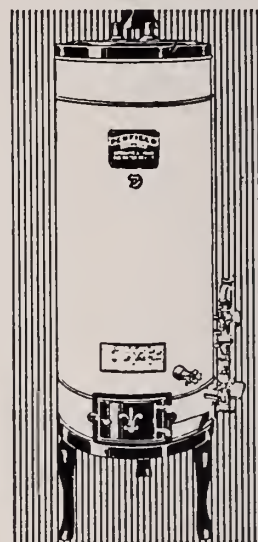
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Are the Neuritic Symptoms of Pregnancy due to deficiency of Vitamins B₁ and G?

SUCH neuritic symptoms of pregnancy as pains in arms and legs, muscle weakness, and paralysis of the extremities may result from a shortage of anti-neuritic vitamins, recent investigations appear to show. Strauss and McDonald report that polyneuritis of pregnancy is a dietary deficiency disorder similar to beriberi, responding to treatment with dried brewers' yeast, rich in vitamins B₁ and G. Wechsler, Hirst, Luikart, Gustafson, and other authorities observe that the avitaminosis is probably the result of hyperemesis gravidarum.

Vorhaus and associates, after administering large amounts of vitamin B₁ to 250 patients having various types of neuritis, including that of pregnancy, observed improvement, ranging from partial relief of pain to complete recovery, in about 90 per cent.

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RECENT ADVANCES IN THE SCIENCE OF NUTRITION

I. THE ROLE OF RIBOFLAVIN IN HUMAN NUTRITION

● In 1933, a series of articles on the vitamins was published, each article written by an authority in the field of nutrition. These papers served to summarize existing knowledge concerning these essential factors. During 1938 a similar series of articles has been issued. Comparison of related papers in these two series will indicate the most important advances in the science of nutrition which have been made in the course of the past five or six years.

In the first series of articles mentioned above, only two of the better known members of the old vitamin B complex received extended discussion (1). The more recent series, however, is characterized by the inclusion of a number of papers on riboflavin which, since 1932, has assumed a new significance in human nutrition (2). As compared with other factors with which it is often associated in nature, the rise of riboflavin to importance in human nutrition is somewhat anomalous.

For example, the effects upon humans of severe dietary deprivation of vitamin B₁ and the P-P factor are well known, in fact, such effects in themselves afford proof of the indispensable nature of these factors. While riboflavin is apparently concerned in cellular oxidation processes of mammals, the specific effect on humans of riboflavin deficiency is not known. Nevertheless, from the weight of evidence accumulated during the last five years, riboflavin is generally accepted as important in human nutrition. Authoritative opinion concerning riboflavin has been succinctly expressed as follows:

"The fact that we do not know any specific human disease due to shortage of riboflavin is entirely compatible with the view that this substance is important in human nutrition. A detailed discussion of reasons for believing that riboflavin plays a role in the life process of the human as

of other species would probably seem superfluous to a majority of readers at this date, and to a still larger majority in the future. Suffice it to point out that our species has evolved in the direction not of shortening the list of things it needs but of lengthening the list of things it can use to advantage." (2c)

Chemically, riboflavin is described as 6, 7 dimethyl-9 (d-l' ribityl) iso-alloxazine; a yellow-green, heat-stable pigment enjoying wide distribution in the plant and animal kingdoms. Many foods, therefore, of both plant and animal origin supply valuable amounts of this essential factor, specifically, fruits, vegetables, particularly the leafy pigmented types, and animal products such as milk and dairy products, meats, liver, and fish. It may, perhaps, be too early to estimate the daily human requirement for riboflavin. However, one rather liberal recommendation lists 600 units* as required daily by older children and adults; the estimated riboflavin requirement for younger children is somewhat less (2c).

In view of the above facts, attainment of an adequate intake of riboflavin would appear to be best insured by a varied dietary regime which includes the so-called "protective" foods. In the formulation of such diets, commercially canned foods may be particularly valuable. The older "vitamin G" assays—which are now known to measure principally the riboflavin contents of foods—indicate that modern canning procedures are without significant effect upon riboflavin. In addition, many foods valued for their contribution of this factor are canned commercially and hence are conveniently available at all seasons on practically every American market. Therefore commercially canned foods may be freely used in arranging such protective diets and they should materially assist in providing an adequate supply of this newly recognized dietary essential, riboflavin.

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*Bourquin-Sherman.

1. 1932, J. Amer. Med. Assn. 98, 2201 and 2283
1932. Ibid. 99, 26 and 121.

2a. 1938, J. Amer. Med. Assn. 110, 1105.
b. 1938. Ibid. 110, 1188.
c. 1938. Ibid. 110, 1278.

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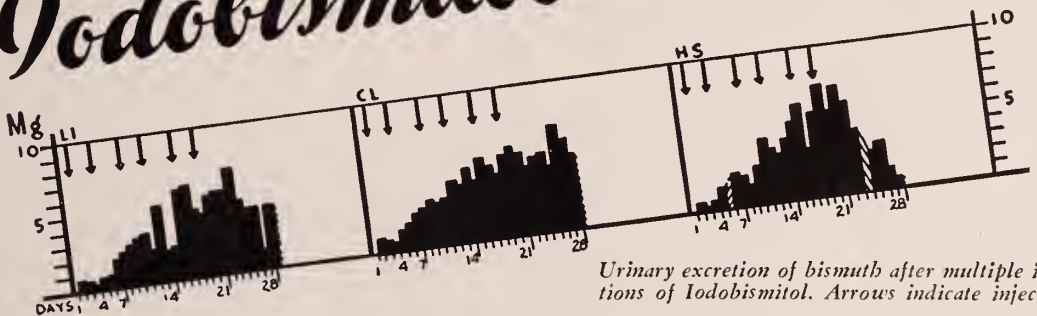
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¹ Sollmann, T., Cole, H. N., Henderson, K., et al.: *Amer. J. Syph., Gon. & Ven. Dis.* 21:480 (Sept.), 1937.

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THE CAUSES AND TREATMENT OF UTERINE BLEEDING*

BROOKE M. ANSPACH, M. D.**
Philadelphia, Pa.

In the normal woman bleeding from the uterus occurs at intervals. The physiologic phenomena of ovulation include the change in the structure of the endometrium which prepares it for the reception of the fertilized egg. The menstrual flow is a sign that conception has not occurred and that the endometrium, ready for nidation of the ovum, will be useless. The thickened mucosa now without a purpose disintegrates and is cast off, the bleeding ceases, the uterine cavity is cleared, the endometrium is restored to its resting stage and a new cycle begins.

Physiologists explain the building up (anabolic) process of the first stage better than the breaking down (catabolic) process of the second stage. Just what factors there are and how they act in the second stage of the cycle is a matter of conjecture.

The difficulty in understanding the normal uterine bleeding, menstruation, extends also to abnormal uterine bleeding. We may say in explanation of its production that either something goes wrong with the functional factors normally concerned or there arises some general disease or some local disorder that affects the genital parts.

Whether functional or general or local in origin, uterine bleeding may take one of two forms—menorrhagia or excessive menstruation and metrorrhagia or independent bleeding occurring at irregular intervals. Functional uterine bleeding may be primarily endocrine in origin or it may result secondarily from the toxic or noxious influences of gen-

eral disorders. The latter may be responsible for uterine bleeding also by reason of changes in the blood and in the capillaries. Local lesions of the genital canal from the vaginal introitus to the abdominal ostia of the tubes may be the cause.

Our interest centers in functional uterine bleeding since only in recent years have we found plausible explanations and some hope of mastering it. It is the source of great inconvenience and misery, being occasionally so persistent as to color unfavorably the entire existence of the individual from puberty to the menopause, promoting ill-health, blasting the hope of reproduction and being the source of much unhappiness. While functional disorders do not threaten the life of the individual, it is quite otherwise with general and local lesions and some of them, unless recognized and successfully treated, are bound to end in death. Since the symptoms from either of these sources, functional, general or local, are much the same, it is very important to distinguish between them. Only when no general or local disease can be found, even after the most thorough search, may uterine bleeding safely be regarded as functional.

The time limits of this paper will not permit us to discuss the general diseases that may be responsible. We refer especially to cardiorrenal or hepatic disorders and the various forms of essential anemia or blood dyscrasias. When any of these are present they are often self-evident or picked up without delay in our first contact with the patient. Our remarks shall be limited therefore more or less to the bleeding that is purely functional, or purely organic in the sense of a local pelvic lesion.

Uterine bleeding presents itself in adolescence, during the reproductive period, at the close of menstrual life and later.

*Read before the Medical Society of Delaware, Wilmington, October 12, 1938.

**Professor of Gynecology, Jefferson Medical College.

BLEEDING AT PUBERTY AND DURING ADOLESCENCE

While the importance of looking for a local cause in any case is apparent, it does not apply as much to the young girl as to the mature and older woman. As the incidence of malignant or other organic causes between puberty and adult life is small we need not subject the adolescent girl to any but the simplest examination at the outset of our treatment. We should determine by bimanual palpation of the uterus and adnexa with the pelvic finger in the rectum that there is no gross enlargement of any of the pelvic organs and thus be at ease concerning uterine or adnexal tumors. It is often advisable, in addition, unless the result of treatment is prompt, to view the cervix through a small Kelly (cystoscopic) speculum with the patient in the knee-chest position. These things can be done in such a way that the sensibilities of the young woman are not offended.

When the symptoms appear to be functional after such an examination, treatment may be started upon that basis. The sex hormones now available and recommended for the control of functional uterine bleeding are in common use and the temptation to prescribe them seems to be nearly irresistible. Occasionally they appear to be effectual, although the discriminating observer may be in some doubt, since the establishment of the menstrual function in the young woman often requires a little time, and what appears to be the result of sex hormone treatment may be merely the natural course of events.

There is no question, however, of the importance of an appreciation of the general health of the young women and the adoption of those measures, medicinal and hygienic (*vide infra*) that may be needed. These come first and when they are adequately provided time alone, with better development and coordination of the endocrine functions, may work great changes. The periods may "settle down" and be no longer the source of inconvenience and worry.

So far as organo-therapy is concerned the thyroid is the most deserving of attention. Either too little or too much thyroid secretion may be the basis of bleeding. Even when the

B. M. R. is within normal limits the clinical features of the patient may be appraised and a careful trial made of thyroid substance or of iodine.

When it becomes quite evident that something more is needed then we may turn to the sex hormones. In choosing the one for trial we should remember that we do not need a hormone that builds up the endometrium; we need one that will bring about the premenstrual stage and favor normal menstruation. Since functional bleeding is so frequently associated with hyperestrinism and hyperplasia of the endometrium, the use of the estrogenic sex hormones, theelin, amniotin, can hardly be based on logical grounds. We may try with reason the anterior pituitary-like luteinizing hormones, follutein, antuitrin-S, or even better, progestin itself, prolution. While they are to be regarded as no more than substitutes, merely making up for a deficiency of the normal products, but not permanently stimulating the anterior pituitary or the ovary, they may tide the youthful patient over her period of adjustment.

Occasionally every measure fails and the blood loss becomes a positive menace. When operative aid is needed despite the patient's youth, it should be limited at the outset to curettage. Under general anesthesia this affords for the first time a completely satisfactory examination of the pelvic organs. An hitherto unsuspected organic lesion may be revealed and the histologic study of the endometrial scrapings will shed important information concerning pituitary and ovarian function. The very act of curettage by removing the bleeding mucosa may increase the tone of the uterine muscle and may stimulate the gonadotropic forces. While indiscriminate curettage is to be deplored, in such instances as these it serves an important and a useful purpose.

X-ray stimulation of the anterior pituitary is a questionable therapeutic procedure. Its apparent success is so occasional that not much reliance can be placed upon it.

As a last resort and only when for one reason or another the bleeding must be checked, intrauterine radiation may be employed. Used with discretion, it affords an excellent pro-

peet of relief and does no harm. We regard it as far preferable to x-ray treatment of the ovaries. There is much more risk of damage when radiation is applied to the ovaries than when it is applied to the inside of the uterus.

Curettage controls the bleeding sometimes only for awhile. When it recurs curettage without intrauterine radiation may again be tried. The second stimulation of the uterine muscle and the gonadotropic factors is sometimes greater than the first. One may always hope for the natural adjustment of function that takes place in the adolescent.

Sound judgment of when it becomes necessary to stop the bleeding with radiation depends upon all the circumstances of the case. Radiation should be limited to 150 mg. hours; it is better to repeat the dose than to give too much at first. While radiation in this degree may fail it does so less frequently than the other plans of treatment.

The subcutaneous administration of snake venom has been successfully used by Peek and Frank. It acts on either the blood clotting factors or the capillary wall. As its influence must be maintained very often by a repetition of the course of injections, we have regarded it with less favor than radiation.

BLEEDING DURING THE REPRODUCTIVE PERIOD

Bleeding in adult women is much more apt to be based upon organic disease and here there is no objection to an immediate and thorough examination and the prompt alleviation or correction of abnormalities by some plan of treatment, operative or otherwise.

We meet at this period in life the bleeding associated with abnormal pregnancies, uterine or tubal; polyps of the cervix or of the endometrium; myomata of the uterus and pelvic inflammatory diseases. Our object under such circumstances often must be to treat the disease more than the bleeding because indeed there are often associated symptoms that are even more deserving of attention.

When we employ major surgery solely for the cure of uterine bleeding we must be wary. The assumption on the part of the surgeon that certain pelvic conditions explain the bleeding is likely to lead him into error. For example, a displacement of the normal uterus is not often responsible for bleeding and a

slightly enlarged and cystic ovary may be nothing more than a sign of disturbed pituitary function.

The treatment of functional bleeding during the reproductive period is beset with the same difficulties found in adolescence. Nothing may be done to endanger the reproductive functions. Yet in the adult women the time has passed when a natural development and correlation of the endocrine forces may be as reasonably expected. There is evidently some deficiency that we must endeavor to supply.

Whether the anterior pituitary-like luteinizing hormones now available have the same effect in the human being as they have in experimental animals is a matter of speculation. The effect is sometimes so immediate that luteinization could scarcely have had time to occur, and the cessation of bleeding may have been a coincidence or it may have been brought about in some unknown way.

Progestin, the active principle of the corpus luteum, seems to offer greater possibilities in converting the intermenstrual into a premenstrual mucosa with normal menstruation as a sequence. Before the administration of progestin, curettage may serve a useful purpose. If the hyperplastic mucosa is removed the sex hormone may act more favorably upon the newly regenerated uterine mucosa. Curettage also gives the advantage of estimating the pituitary function as well as accurate diagnosis and the opportunity to remove simple intra-uterine lesions. The use of progestin, of course, is again merely substitution and may need to be repeated from time to time.

Much to be desired is a preparation of the anterior pituitary gland itself that contains its active gonadotropic principles; this would provide ideal stimulation of the ovary.

The administration of thyroid is diminished or of iodine in excessive activity of the thyroid gland may be quite effectual in the mature as well as in the youthful patient. When there are clinical symptoms suggestive of hypo- or hyper-thyroidism a careful trial of these remedies may be undertaken even though, as we have said, the B. M. R. is reported to be within normal limits. In the functional bleeding of mature years, as well as of adolescence, attention must be paid to this factor at the very

beginning when the state of the general health is being scrutinized. An estimate of the thyroid function and an attempt to place it upon a normal level should be one of the first considerations in every case.

It is an indubitable fact, however, that if we depend upon sex hormones or any form of organo-therapy alone we are not exhausting our therapeutic resources. We must raise the individual's well being to the highest point. The anterior pituitary gland not only governs the ovaries but also has a distinct influence on the thyroid, parathyroid, the adrenals, the pancreas and the vegetative nervous system. They are mutually interdependent for their complete normal activity. Our efforts to increase the general health of the individual almost certainly therefore will be reflected to the endocrine functions and the sex hormone of the laboratory will be augmented or replaced by an increase in the sex hormones of the individual.

To that end the physical condition of the patient should receive careful study and any deviations from the normal should be actively treated. This comprises the eradication of infectious foci, the treatment of hemic, cardiovascular, visceral, metabolic and allergic disorders. Attention should be given to the free elimination of waste products, muscular exercise, fresh air and sunlight. The underweight should receive a high caloric diet, rich in carbohydrate, fat and vitamins. In some cases insulin in small dose will increase the appetite and be of benefit.

The overweight should have a low caloric diet, restriction of fluids, increased elimination by laxatives, hot sweat baths and massage. While obesity is more frequently associated with amenorrhea than with uterine bleeding, it is often a sign of endocrine disturbance and as there seems to be a definite relationship between fat metabolism and gonadal function a reduction in weight should be attempted as it may go hand in hand with a renewal of the normal activity of the sexual functions.

In obstinate cases a second curettage may be performed, especially if the first one has been followed by the relief of symptoms for awhile. When the patient is married and desires children, pro-conception measures for

both husband and wife should be vigorously observed. Pregnancy may permanently cure the endocrine dysfunction.

When nothing seems to be of benefit, when the patient's symptoms are distressing and the ill health becomes a matter of concern, then intra-uterine radiation may be undertaken. The dose here should be a minimum one—200 to 300 milligram hours, too little rather than too much, the patient being warned that a repetition of the treatment may be necessary.

If childbearing is of no consequence to the patient, supravaginal amputation of the fundus with conservation of the adnexa is a certain final resource. A little of the endometrial cavity may be conserved with both adnexa so that menstruation continues in small degree and the ovarian functions are preserved.

BLEEDING AT THE MENOPAUSE AND LATER

As the end of the reproductive period is approached the incidence of malignant disease increases and at this time of life we have very little if any need of the various preparations that are advised so widely for functional bleeding. It might be said that they are a real menace, sedulously to be avoided. Our first concern must be the elimination of organic malignant disease of the uterus and one must not forget that cancer of the Fallopian tube and granulosa cell tumors of the ovary may explain bleeding at this period of life. If there is no evidence of malignancy anywhere in the pelvis then the intrauterine use of radium from 1200-1500 mg. hours is a certain and a harmless means of cure. When plunging the patient into an early or an artificial menopause is objectionable, a supravaginal hysterectomy with conservation of the adnexa is the procedure of choice.

Cancer of the uterus will require intra-uterine radiation alone, or as a preliminary to x-ray radiation or to hysterectomy.

If there is doubt from the gross appearance of the curettings, radium should be introduced at once and left in situ until, by a rapid preparation of histologic sections, the diagnosis is definitely made. When a benign lesion, hyperplasia, exists, 1200 to 1500 milligram hours is enough; when carcinoma is found the ra-

dium should be left in situ for at least 3600 milligram hours.

In women with postmenopausal bleeding, when the curettings grossly suggest hyperplasia and there is some ovarian enlargement, great care should be exercised to exclude granulosa cell tumors of the ovary. An excess of estrin in the urine is a valuable diagnostic point.

When there is a thin atrophic endometrium and virtually no curettings, careful examination of the adnexa is needed to exclude carcinoma of the Fallopian tube. If there is repeated chocolate or bloody discharge associated with the development of adnexal enlargement an exploratory incision may be indicated. When doubt exists as to whether either of these adnexal lesions exist, radiation should be postponed until the patient has been observed over a sufficient period.

Now, to recapitulate, the object of my paper is to bring to your attention the importance of distinguishing bleeding due to functional disturbance from bleeding due to local lesions; and, secondly, that in the young woman, before we start any treatment, a pelvic examination should be made through the rectum to be sure there is no growing lesion in the pelvis, and unless the treatment is promptly effective, look at her cervix—there may be a polyp there to explain the symptoms.

Then, in the young woman, we should not be too much in a hurry. I saw a young woman today in my office who is now ready to have her fourth child, who, for a couple of years after she started menstruation, had a lot of difficulty. In those days we had none of the hormones, and we used desiccated ovaries, which are now said to have no value whatever, and I suppose they do not. She gradually straightened out.

I do not want you to think for one minute that we use curettage indiscriminately. It is only as a last resort. It is always done very carefully, but sometimes, with anesthesia, gives the first opportunity to make a satisfactory examination.

Some of these young women really become in a very serious state. They lose so much blood that their hemoglobin gets low, and you

just have to stop the bleeding. You can stop it with radium, used in the way I have indicated.

Then, in the child-bearing woman, the same things apply more or less that we have already discussed, although there are more often organic causes, and no objection to making thorough examinations from the very beginning.

As we approach the climacteric stage our chief concern there must be to eliminate cancer, and there, I think, these sex hormones have no place whatever. Certainly, they ought not to be used ever without a preliminary curettage and a thorough examination. No time should be wasted even in trying them. Especially in the post climacteric. They should not be tried at all until we are sure there is nothing malignant. Even afterwards, if you want to get the patient well quickly, radium will be promptly and certainly effective.

1827 Spruce Street.

DISCUSSION

DR. S. W. RENNIE (Wilmington): I am sure we have all learned a great deal from this paper. There are a couple of questions I would like to ask Dr. Anspaeh; one, particularly, being to ask if he has had any results from the use of insulin, other than promoting an increase in appetite. From histological sections we find that the use of insulin does two or three things. Certain erosions of the cervix can be cured by it, and uterine musculature shows changes from the use of insulin. These very young cases of bleeding, rather than the type occurring at menopause, seem to have some results from the use of insulin.

Another question was as to the use of snake venom in cases not the young type, but the later cases, the ones occurring around the time of menopause in those patients who have had a curettage and have had the regular series of antuitrin-S injections, or other pituitary hormones from which they get no result. Does snake venom benefit these patients enough to use it?

I was reading recently of the use of dyes, particularly Congo Red. I have never had any experience with it. I have never heard of anyone using it, other than in the litera-

ture I have read. I would like to know if Dr. Anspach has employed this measure.

Recently, I have seen a few cases of bleeding. There was one little girl in whom bleeding has occurred for a number of years. One year ago she received antuitrin-S treatments, with very good results. A year later she began to have the same process all over again. She was confined to bed. She did not lose much weight. However, she became quite anemic. For her, instead of using anterior pituitary hormones, she was given x-ray therapy; that is, small doses—fifty hours for three doses, a total of one hundred fifty hours—and in this case her bleeding ceased.

We do find, however, cases of amenorrhea. We have had a number of those cases where they have received small doses of x-ray, and have had very good results.

In cases where we think there is migraine, that is, cases with severe headaches at the time of menstruation, they have also received small doses in the pituitary region, and they had very good results with reference to their headaches.

We do know that all these endocrines are hooked up in a continuous link, thyroid especially being the ones that have given the best results in a great number of cases.

I enjoyed the paper very much.

DR. ANSPACH: I was very interested in Dr. Rennie's remarks. We have used insulin only in association with the increase in well-being of the patient, the underweight patient.

I mentioned snake venom in my paper but I did not enlarge about it because I thought I might bore you too much. I think it sometimes appears to be successful. Dr. Peek and Dr. Frank of New York are especially enthusiastic about it.

Of course, these things, like all the substitution products, probably have to be repeated from time to time, but in the young woman that may be not objectionable. It tides her over her period of adjustment.

About Congo Red I know nothing.

About x-ray of the pituitary, I have no confidence in it, and we must remember that, after all, we do not know very much about it. X-ray men say that the x-ray does not stimulate; it always kills or depresses. That may

not be universally agreed upon at the present time, but when this subject first came up for discussion before the Obstetrical Society, Dr. Chamberlain was the President, and the apparent increase in activity of the pituitary following x-ray was supposed to be due to a relative increase in one of the other hormones.

The pituitary manufactures a great many hormones, and if you use x-ray to stimulate the pituitary hormones, as it affects the ovary, you do not know just what you are doing to the other hormones, so that we have thought it less useful than the use of radium.

No matter what you use or what plan you pursue you will have apparent success, and it is interesting always to pick up an old medical magazine and find out what was said fifteen or twenty years ago; and if you read magazines of fifteen or twenty years ago you will find articles in which the use of the dried ovary, or the corpus luteum, was highly recommended, and it proved successful in a majority of cases reported.

Probably the truth is that in the young woman we can try to avoid being radical in the hope that she may adjust herself. If you have to be radical, then radium in small doses certainly is a means of getting her well.

The same thing is true in the married woman, the reproductive woman, but a very important factor concerns the woman at the age of menopause. There these things should not be tried, because that is very dangerous.

CALCIUM THERAPY IN PUERPERAL INFECTIONS*

WILLIAM J. CUSICK, M. D.**
Washington, D. C.

In considering the role of calcium in the treatment of puerperal infections it should be borne in mind that in this type of infection we no longer look upon the inflammatory phenomena as a defensive or even a reparative process. On the contrary and to prevent further extension of the disease, therapy is directed toward localizing the pathologic condition as quickly as possible. Inflammation here, as elsewhere, is characterized by local swell-

*Read before the Delaware Academy of Medicine, Wilmington, January 5, 1938.

**Professor of Clinical Obstetrics, Georgetown University.

ing due to exudation, pain resulting from increased tissue tension combined with smooth muscle spasm, increase in local temperature as a result of congestion, and an elevation of general body temperature due to absorption of toxic substances of bacterial origin and from tissue injury.

In conjunction with the general treatment of puerperal infections the most satisfactory medicament is one that will not only relieve the subjective symptoms but which will also improve the resistance of the patient, neutralize toxic substances and hasten the return of the pathologic state to a normal condition. Calcium, because of certain well-known pharmacologic properties, is a logical adjuvant in the treatment of this as well as other inflammatory disorders.

Bayliss⁽¹⁾ showed many years ago that the calcium ion decreases cell permeability and thus tends to limit the exudation and transudation that accompany inflammation. According to Hamburger⁽²⁾ the ratio of calcium, sodium and potassium ions in a perfusing fluid is the determining factor in the formation of edema. The calcium ions tend to raise the resistance of the capillaries to permeation and at the same time act as a capillary stimulant, while the sodium and potassium ions on the other hand tend to increase the permeability of the capillary walls and favor exudation. Blum⁽³⁾ believes that the administration of calcium reduces the sodium content of the blood and prevents the migration of this ion into the tissues. Since water follows sodium, the accumulation of fluid which generally accompanies inflammation is therefore inhibited by calcium. Januschke⁽⁴⁾ first showed that typical inflammatory reactions produced by mustard oil can be prevented by the previous administration of adequate doses of calcium. Gold⁽⁵⁾ and Rothlin⁽⁶⁾ both found experimentally that pleural effusion produced by the intrapleural injection of copper sulphate is considerably reduced by calcium salts. Smejkal and Pisani⁽⁷⁾ concluded from their observations on the use of calcium gluconate in artificial pneumothorax that the calcium ion not only limits exudation and transudation but hastens the absorption of any exudate already present.

Clinically, Behan⁽⁸⁾ found that the pain

of cancer was entirely controlled or greatly modified by calcium injections, and Bauer, Salter and Aub⁽⁹⁾ secured dramatic relief from the abdominal distress of gallstone, renal and intestinal colic by the same method. Herrold,⁽¹⁰⁾ Ruper,⁽¹¹⁾ Cerf,⁽¹²⁾ and Leff and Spencer⁽¹³⁾ have reported that both pain and edema in gonorrheal epididymitis disappear rapidly following intravenous infusions of calcium. Zalewski,⁽¹⁴⁾ Pizzi,⁽¹⁵⁾ Diasio,⁽¹⁶⁾ Parvey⁽¹⁷⁾ and others have noted favorable results with calcium therapy in gonorrheal salpingitis, particularly in the acute forms, and Parvey also pointed out its value as a hemostatic in gynecologic conditions in which bleeding is a symptom.

Theobald⁽¹⁸⁾ reviewed the literature on the therapeutic use of calcium in eye conditions and has reported good results with it in her own practice in acute and chronic uveitis, herpes of the cornea and corneal ulcer. Still others including Nuhsmann⁽¹⁹⁾ and Geiger⁽²⁰⁾ recommend the prophylactic use of calcium in operations on the nose and sinuses to reduce postoperative swelling and edema.

Tunnicliff⁽²¹⁾ and Hamburger and Hekema⁽²²⁾ have demonstrated experimentally on both man and animals that calcium increases phagocytosis by the leucocytes of the blood. Phagocytosis is, of course, one of the protective mechanisms of the body. Finally, Minot and Cutler⁽²²⁾ showed that calcium protects liver functions and is a physiologic antidote for toxic products generated from tissue injury occurring in the course of toxic states.

All of these properties of the calcium ion have a place in the treatment of puerperal infections. With calcium therapy the lower abdominal tenderness and pain are quickly relieved, the temperature rapidly returns to normal and further exudation is not only checked but the reabsorption of existing exudate is hastened.

Previous to the introduction of the gluconic acid compounds of calcium, the chloride and lactate were generally used. The irritating effects of both the chloride and lactate salts make these unsuitable for intramuscular injection since their irritant action may cause induration and even abscess formation. Cal-

cium chloride in particular is relatively quite toxic. The nausea and vomiting that sometimes follow its intravenous administration and the other symptoms of shock that may accompany its use unless it is given very slowly and with the greatest of care, limit its practical usefulness. Furthermore, both the chloride and the lactate are unpalatable and not suitable for prolonged oral use.

These objections have been overcome by the development of calcium gluconate (Calglucon) which is available in the form of tablets and granules for oral administration. Calcium gluconate contains 9.3% of calcium ion; the gluconic acid radical, an oxidation product of glucose, is completely burned in the body. For safe intravenous infusion and painless intragluteal injection the double salt of calcium gluconate and calcium galactogluconate is now being used and is available, under the trade name Neo-Calglucon, in stable ampule solutions equivalent in calcium ion content to 10 per cent and 20 per cent solutions of calcium gluconate.

The method of administering calcium employed in this study is a combination of that described by Zalewski, supplemented by oral administration. The contents of a ten cc. ampule of Neo-Calglucon were taken into a twenty cc. syringe, the needle was then inserted into a vein and ten cc. of blood withdrawn and permitted to mix with the calcium solution. One-half of this mixture was re-injected into the vein and the other half, after withdrawal of the needle, was injected deeply into the gluteal muscle. This method combines the rapid and intense effect of the intravenous injection with the slower but more sustained action of intramuscular absorption and in addition induces protective protein therapy action.

Daily injections were given in the majority of cases, but usually were not required beyond ten days. To intensify and prolong the effects established by the injection one heaping teaspoonful of calcium gluconate granules was given three times each day in milk or water. Oral dosage was continued even after the patient was discharged from the hospital to prevent any possible excitation of the infectious process.

In the obstetrical patient the violent peristaltic action of the tubes at the time of labor may result in the exacerbation of a latent infection. Parvey, for instance, reported the re-appearance of symptoms of tubal inflammation following abortion. Further a new infection may gain entrance to the uterus through the open blood or lymph sinuses.

This study is based on 26 puerperae in whom the temperature persisted above 101 F., for more than 48 hours without a demonstrable cause outside of the pelvis. The chief complaint was abdominal pain and tenderness, located in the lower portion of the abdomen. The pain was bilateral in 18 cases; unilateral in 8. Other complaints were frequency and urgency of urination. In 14 cases the vaginal discharge was putrid, and in the remaining 12 the discharge had decreased, though the constitutional symptoms were greater. Microscopic examination of the discharge from both cervix and urethra was positive for gonococci in 2 cases and negative in 24.

The treatment employed in this series of 26 cases was:

Rest in bed.

Ice bag to lower portion of the abdomen.

Elevation of head of bed.

Fluids in quantity.

Milk of magnesia when necessary.

No sedatives, douches or powerful cathartics permitted.

Neo-Calglucon, 1 ampule of 10 cc. of the 10 per cent product, was injected intragluteally and intravenously, as suggested, each day.

Calcium gluconate granules, one heaping teaspoonful three times daily before meals, in warm milk.

While injections were painless there was a generalized sense of warmth that lasted from two to three hours. The calcium given orally acted as a mild laxative, and as a rule no milk of magnesia was required.

With this treatment the average hospitalization period was 14 days, varying from a minimum of nine days to a maximum of 22 days. This disability time compared favorably with that in a similar group observed previously and to which the same treatment was given except for the omission of the calcium.

In those cases treated with calcium there was rapid alleviation of the pain, so that the patients were able to rest comfortably. In 19 cases the pain disappeared within 34 hours; in 4 cases in 48 hours and the rest within 72 hours. Rigidity of the abdomen was gone in 52 hours, and tenderness on pressure disappeared within 6 days. The temperature curve returned to normal within an average of 6 days. Calcium therapy relieved the pain so dramatically and so uniformly that if for no other reason calcium should be used in the treatment of puerperal infections.

At the time of dismissal all patients were given a pelvic examination. If there was any evidence of an inflammatory process, calcium was continued orally three times daily.

CONCLUSION

A series of 26 cases of puerperal infections was observed. In this series Neo-Calglucon was given intravenously and intramuscularly, supplemented with Calglucon by mouth in addition to the well-established routine treatment, and as a result:

The average period of hospitalization was 14 days, as compared to 21 days for a comparable group in which no calcium was given.

Relief from pain was impressive and occurred in most patients within 24 hours after beginning treatment. The patients became comfortable and were able to rest.

Rigidity of the lower abdominal and pelvic tissues disappeared in 52 hours. Tenderness and pressure over the lower abdomen was gone in from 4 to 6 days, and the temperature dropped to normal.

No untoward reactions were noted following the injection of calcium intramuscularly or intravenously.

Because of the constant diminution of hyperpyrexia, pain and disability, and the possibility of reducing the mortality, the deduction was made that calcium therapy is uniformly satisfactory, and can be used safely in the treatment of puerperal infections.

PUERPERAL INFECTIONS

Number of cases treated.....	26		
	Minimum	Maximum	Average
Number of days of fever	3 days	8 days	6 days
Duration of pain	24 hours	72 hours	44 hours
Duration of abdominal tenderness and rigidity.....	52 hours	7 days	6 days
Number of injections	9	24	10
Total number of days of disability	9 days	22 days	14 days

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THE COMBINED ORAL AND RECTAL ADMINISTRATION OF PARALDEHYDE DURING LABOR*

HOWARD F. KANE, M. D.**

GEORGE B. ROTH, M. D.

and

THEODORE E. MANDY, M. D.

Washington, D. C.

In the search for methods by which to eliminate the pains of labor, the first consideration must be the safety of the agents employed; next in importance is their effectiveness; and finally, simplicity of administration. The procedure here to be described utilizes the drug commonly accepted as the least toxic agent by which unconsciousness can be obtained;(1) it provides complete absence of the memory of labor in 96% of cases, and the technic of administration is uncomplicated. Moreover, obnoxious side-actions, as excitement and local tissue damage, are not encountered when the patient is properly prepared and the details of the method are scrupulously carried out.

The use of paraldehyde in labor was first reported by Rosenfield and Davidoff (2) in 1932. They gave it by rectum, with olive oil, as an adjuvant to pentobarbital. Observation of patients excited to the point of requiring restraint, and reluctance to recommend the relatively toxic barbiturates in the necessary dosage, led Kane and Roth (3) to determine the efficacy of paraldehyde alone. Experiments upon animals showed that paraldehyde

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produced satisfactory analgesia without causing undue restlessness, when properly given. Later, when the drug was given to patients, it was found that both analgesia and amnesia were obtained.

While this work was in progress Colvin and Bartholomew⁽⁴⁾ in 1934, reported success with a method similar to that of Rosenfield and Davidoff, in which sodium amytal was used instead of pentobarbital.

Believing that olive oil in the rectal injection delayed the absorption of paraldehyde and that the increased amount of fluid was retained less easily, Kane and Roth instilled the paraldehyde undiluted. It was found that the drug is somewhat irritating and that in many instances it was expelled. By adding the local anesthetic benzyl alcohol to the paraldehyde the rectal mucosa was sufficiently anesthetized to permit retention of the solution.

Experiments upon the intact and extirpated uteri of cats, rabbits and guinea pigs, and observation of patients in labor, by Roth and Kane⁽⁵⁾ and the measurement of the force and frequency of uterine contractions by Moore and McCurdy⁽⁶⁾, using the Dodek hysterograph, gave identical information; paraldehyde at first decreases the intensity and lessens the frequency of uterine contractions. After a few pains, however, this effect disappears and the uterus resumes its former power and rhythm. Benzyl alcohol, in the dosage recommended, apparently has little narcotizing action. The fact that in many cases, particularly in multiparae, dilatation of the cervix seems to be more rapid than is usual suggests that this benzyl compound relaxes the circular muscle of the cervix. A small series of animal experiments bears out this assumption. Examination of the rectal mucosa of animals showed that the solution is not sufficiently irritating to cause tissue damage, and clinically no case of proctitis has followed its use.

A detailed study by Kotz and Katzman⁽⁷⁾ of 200 cases under paraldehyde-benzyl alcohol anesthesia furnished data which is in accord with the experience of others. These authors found: (1) conjunctival and corneal reflexes absent; (2) pupils contracted; (3) blood pressure lowered 10 to 30 mm. Hg.; (4) pulse rate increased 20 to 70 per minute—

the longer the patient was in labor the greater the increase of pulse rate, which varied from 90 to 140 per minute; (5) temperature elevated 1 to 4 degrees, varying with length of labor and amount of dehydration; (6) respirations increased 4 to 10 per minute, the amplitude being deep with the patient frequently snoring; (7) fetal heart rate increased 10 to 30 beats per minute; (8) total leucocyte count increased, varying between 12,000 and 33,000; (9) differential leucocyte count revealed segmented polymorphonuclears increased 75 to 89 per cent, band forms increased 1-3 per cent, lymphocytes decreased 10-23 per cent; (10) erythrocytes not changed; (11) hemoglobin not changed; (12) increased specific gravity of urine.

As possible contraindications to the use of paraldehyde, were considered diabetes and pathology of the liver, kidneys and the lungs.

Defandor⁽⁸⁾ has shown that the drug produces a slight increase in blood sugar in dogs under anesthesia, but that the amount is insignificant, and there resulted no glycosuria. The CO₂ combining power in the blood may be lowered to a degree corresponding to that of a mild acidosis. Clinically, paraldehyde has been employed in several cases of diabetes with no untoward results. The tendency toward acidosis has been combatted successfully by the use of orange juice and dextrose as a routine part of the technique.

In the experience of the authors there has been no occasion to give paraldehyde to a patient with pneumonia, but they have used the drug in one case of acute pulmonary tuberculosis. In this connection, Dixon and Smart⁽⁹⁾ state that paraldehyde is "one of the safest of the basal hypnotics for there is no respiratory depression." They advise doses of one dram hourly up to one ounce if necessary, in asthma and lobar pneumonia.

As one of the earliest suggestions for the use of paraldehyde in obstetrics was for controlling eclamptic convulsions,^(10,11) it has been given to toxemic patients without fear of liver or kidney damage.

All observers agree that while the use of paraldehyde does not materially affect the length of labor, the average duration is somewhat shortened.

An objection frequently raised is that the unconscious patient is unable to "use her pains" during the second stage of labor. Observation of these cases has strengthened the belief that voluntary efforts do not aid in the expulsion of the fetus. Although these women are not allowed to "bear down" and pull on straps, the second stage progresses as rapidly as in cases in which the patients attempt to cooperate. This conservation of energy, combined with the 4 to 12 hours of sleep which usually follows delivery, undoubtedly is largely responsible for the freedom from exhaustion which is so noticeable.

In the 280 cases upon which this report is based, 212 were delivered from the wards of Gallinger Municipal Hospital under the direction of Mandy, and 68 were private patients. One hundred and fifty-nine of the hospital cases, a large percentage of whom were multiparae, were delivered spontaneously. The private patients were all delivered by outlet forceps when the head reached the perineum and by other procedures when necessary. When the presenting part begins to stretch the vulva the patient becomes so restless that aseptic technic is maintained with difficulty. It has been found that complete anesthesia and instrumental delivery provide a more satisfactory method of terminating labor.

Routine delivery by outlet forceps is being more and more widely practiced without regard to the type of anesthesia employed, and when properly performed it should be entirely harmless to the child. It has been found that the incidence of the much more dangerous mid forceps operation has been lessened by the fact that the patient is unconscious and therefore there is less temptation to interfere prematurely.

Ethylene has been used in all cases except when it has been impossible to secure the services of an expert anesthetist. When necessary, ether has been given, and it is in these cases that delayed respiration on the part of the baby has occasionally occurred.

Because, in many cases, hypnosis was not obtained until after a second rectal instillation had been given, morphine was frequently used one-half hour after the initial dose of paraldehyde-benzyl alcohol. In primiparous cases, with the prospects of long labor, no unfavor-

able action of morphine was feared. With multiparae, when labor is progressing rapidly from the start, the action of paraldehyde per rectum is too slow, and while the authors have never noted serious results following the use of morphine at any time during labor, in deference to concensus of opinion the administration of the drug has not been advocated in these cases. As a result, it was admitted that in multiparous labors of less than four hours duration the method was of little value.

When Douglas and Peyton⁽¹²⁾ published their results with the oral administration of paraldehyde and reported much more rapid action than was obtained when the drug was given per rectum, the authors adopted their method, with modifications, for the initial dose.

The technique now employed is as follows:

1. The patient is instructed to go to the hospital as soon as possible after the premonitory signs of labor appear. The object of the method is to relieve pain, and pain alone is the indication for beginning treatment, without regard for the condition of the cervix or the character of the contractions.

2. Soapsuds enemata are given until the return is absolutely clear. This is particularly important, as fecal matter in the rectum interferes with the absorption of the drugs, causes, in effect, inadequate dosage and results in restlessness on the part of the patient.

3. The oral dose of paraldehyde for patients weighing up to 170 pounds is 20 c. c. Above that, 1 c. c. is added for each 10 pounds of weight.

4. The paraldehyde is mixed with an equal amount of aromatic elixir and into the glass is put one-half teaspoonful of crushed ice.

5. The patient is given one teaspoonful of crushed ice which is held in the mouth until it is dissolved. This acts as a momentary local anesthetic.

6. While the ice in the patient's mouth is being dissolved, the paraldehyde-aromatic elixir mixture is vigorously stirred until the ice in the glass has melted.

7. While the effect of the ice in the mouth is still present, the patient as a rule experiences little difficulty in swallowing the ice-cold mixture of drugs. She is, however, allowed a few sips of ice water immediately

after taking the dose. Too much ice before and too much ice water after drinking the mixture, as well as orange juice and other taste-removers increase the tendency to vomiting. Plugging the nostrils with cotton was found to annoy the patients and has been dispensed with.

8. The average patient becomes definitely drowsy within 10 minutes, sleeps between contractions during the next 30 minutes, and thereafter is not aroused by the pains.

9. The effect of the initial dose usually lasts from two to four hours. When it is necessary to repeat the medication, the original method, paraldehyde-benzyl alcohol by rectum is adopted. In the occasional case in which the patient is still conscious one hour after oral administration, the rectal instillation is given at that time.

10. The rectum is irrigated with normal saline solution and the patient is placed upon her left side.

11. The minimum effective dose of paraldehyde, by rectum, is 1.2 c. c. for each 10 pounds of the weight of the patient at the beginning of labor.

12. The dose of benzyl-alcohol is always 1.5 c. c. As the action of this drug is largely that of a local anesthetic, the dose does not vary with the weight of the patient.

13. To the required amount of paraldehyde is added 1.5 c. c. of benzyl alcohol and the mixture is instilled into the rectum by gravity through a funnel and a large catheter which is inserted for a distance of 4 inches. As the solution disappears from the funnel it is followed by not more than 30 c. c. of normal saline solution which washes out the catheter and distributes the drugs. The bulk of the injection is so small that instillation can be accomplished between two contractions. While there is little tendency on the part of the patient to expel the solution, it is recommended that during at least 4 or 5 pains the buttocks be compressed.

14. The dose, and always the full dose, may be repeated if necessary, in one and one-half hours. As labor progresses it will be found that the effect of each successive injection is more lasting, the intervals between repetitions becoming 3, 4 or 5 hours.

15. When several doses of the mixture are given, the rectum should be irrigated with normal saline solution before each alternate instillation.

16. To minimize dehydration, a glass of orange juice or water should be given before each rectal injection. The patient is usually capable of cooperation to the extent of drinking; otherwise dextrose, intravenously, may be given.

17. Since the patient is not conscious of bladder distention, catheterization should be performed every eight hours.

18. Restlessness means that the rectum is not clean, the effect of the drug is wearing off, or that the presenting part is approaching the perineum. When it occurs during the first stage, the dose should be repeated at the first signs of awakening.

Twenty patients vomited almost immediately. In nearly every instance it was noted that the stomach contained food. Immediately after vomiting ceases the dose is repeated and the stomach, emptied by vomiting, practically always retains this second dose. In several instances vomiting has occurred twenty or thirty minutes after the paraldehyde mixture has been given. These patients have begun to be affected by the drug and oral administration is difficult. They, therefore, are given the paraldehyde-benzyl alcohol mixture by rectal instillation.

RESULTS

In estimating the value of this method in securing analgesia and amnesia the cases have been separated into five groups. Group A consists of those patients who have slept quietly from the time that the paraldehyde has taken effect. In group B are patients who have moved about, at times seemed to be completely rational and have complained of pain. As there is complete amnesia in these cases, the method is considered to have been successful. The patients who remember events but no pain constitute group C. Those who remember having had some pain but whose suffering was undoubtedly relieved are placed in group D. In group E are those who received no benefit.

(Concluded on page 204)

TUESDAY, OCTOBER 11, 1938
GENERAL SESSION
New State House

- 10:30 A. M.—Invocation.
Rev. James W. Colona, Smyrna.
- 10:40 A. M.—Address of Welcome—
Mayor Wallace W. Woodford, Dover.
- 11:00 A. M.—Surgery — Surgical Problems
of Hyperthyroidism—
I. S. Ravdin, M. D., Philadelphia.
- Discussors:
W. Edwin Bird, M. D., Wilmington, and
H. V. P. Wilson, M. D., Dover.

LUNCHEON
by the
KENT COUNTY MEDICAL SOCIETY
Hotel Richardson
12:15 P. M.

GENERAL SESSION
New State House

- 2:00 P. M.—Medicine—Arterial Hyperten-
sion—
Maurice C. Pincoffs, M. D., Baltimore.
- Discussors:
Lewis B. Flinn, M. D., Wilmington, and
J. R. Elliott, M. D., Laurel.
- 2:40 P. M.—Obstetrics—The Classical Cae-
sarean Section; Its Advantages and Tech-
nique—Lantern Slides—
E. A. Schumann, M. D., Philadelphia.
- Discussors:
Carl Henry Davis, M. D., Wilmington,
and W. T. Chipman, M. D., Harring-
ton.
- 3:20 P. M.—Pediatrics—Hypothyroidism in
Children—
Lawson Wilkins, M. D., Baltimore.
- Discussors:
Charles E. Wagner, M. D., Wilmington,
and John Baker, M. D., Milford.
- 4:00 P. M.—Urology — Bloodstream Infec-
tions in Urological Cases—
Francis G. Harrison, M. D., Philadel-
phia.
- Discussors:
Brice S. Vallett, M. D., Wilmington,
and N. R. Washburn, M. D., Milford.

TUESDAY, OCTOBER 11, 1938
MEETING OF THE HOUSE
OF DELEGATES
New State House
8:00 P. M.

1. Call to order.
2. Roll Call.
3. Reading of Minutes of Last Session.
4. Appointment of Committee on Nomi-
nations.
5. Reports of Officers.
 - a. President.
 - b. Secretary.
 - c. Treasurer.
 - d. Councilors.
6. Reports of Standing Committees.
 - a. Scientific Work.
 - b. Public Policy and Legislation.
 - c. Publication.
 - d. Medical Education.
 - e. Hospitals.
 - f. Neurology.
7. Reports of Special Committees.
 - a. Woman's Auxiliary.
 - b. Cancer.
 - c. Syphilis.
 - d. Tuberculosis.
 - e. Medical Economics.
 - f. Criminologic Institutes.
 - g. Mental Health.
 - h. Maternal and Infant Mortality.
8. Report of Delegate to the American
Medical Association.
9. Report of Representative to the Dela-
ware Academy of Medicine.
10. Unfinished Business.
11. New Business.
 - a. Resolutions.
 - b. Communications.
 - c. Appropriations.
 - d. Approval of Scientific Program.
 - e. Selection of Meeting Place.
 - f. Miscellaneous.
12. Adjournment.

WEDNESDAY, OCTOBER 12, 1938
New State House

9:30 A. M.—Report of House of Delegates.

10:00 A. M.—Presidential Address — The Medical Approach to Sex Instruction in the Schools of Delaware—

C. J. Prickett, M. D., Smyrna.

11:10 A. M.—Tuberculosis—The Indications for Surgery in the Treatment of Pulmonary Tuberculosis—

David A. Cooper, M. D., Philadelphia.

Discussors:

L. D. Phillips, M. D., Marshallton, and Stanley Worden, M. D., Dover.

10:30 A. M.—Allergy—Clinical Allergy—

Richard A. Kern, M. D., Philadelphia.

Discussors:

Joseph M. Barsky, M. D., Wilmington, and William Marshall, M.D., Milford.

11:50 A. M.—Election of the President for 1939.

2:00 P. M.—Cardiology—The Problem of Heart Disease as it Stands Today.

Thomas McMillan, M. D., Philadelphia.

Discussors:

Olin S. Allen, M. D., Wilmington, and Joseph B. Waples, M. D., Georgetown.

2:40 P. M.—Psychiatry—Modern Trends in Psychiatric Therapy—

Kenneth E. Appel, M. D., and James A. Flaherty, M. D., Philadelphia.

Discussors:

M. A. Tarumianz, M. D., Farnhurst, and Taleasin H. Davies, M. D., Wilmington.

3:20 P. M.—Syphilis—Present Day Control of Venereal Diseases from a State and National Viewpoint—

R. A. Vonderlehr, M. D., Washington, D. C.

Discussors:

I. L. Chipman, M. D., Wilmington, and J. R. Beck, M. D., Dover.

4:00 P. M.—X-Ray—The Status of X-Ray and Radium in Treatment of Cancer—

E. P. Widmann, M. D., Philadelphia.

Discussors:

George C. McElpatrick, M. D., Wilmington, Ira Burns, M. D., Wilmington.

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6:00 P. M.

8:00 P. M.—Public Address—The National Health Program and American Medicine—
Morris Fishbein, M. D.

Editor of the Journal of the American Medical Association, Chicago, Illinois.

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VOL. X SEPTEMBER, 1938 No. 9

MEDICAL BUREAUCRACY AND CRIPPLED CHILDREN

An illuminating example of what happens to medical service when bureaucracy enters between doctor and patient is being provided by the Washington state crippled childrens program. Here, in miniature, may be seen the workings of dictatorial governmental control of medicine and the threat of increasing cost coupled with deteriorating service to the patient. Here in actuality are the very things which the profession has predicted, if outside control enters the picture. Here is a real foretaste of state medicine.

The organization now in operation was stimulated by the federal social security legislation of 1935 which established certain requirements which were to be met by the state organization before federal funds would become available. As it is now financed, the fed-

eral government supplies approximately one-third of the funds for the plan. When possibilities of the proposed plan were first realized, a committee with members from Washington State Medical Association met with representatives of the State Department of Welfare.

Federal requirements were quickly met and the Washington state plans were submitted to the office in Washington, D. C., January, 1936. Expected approval did not materialize. Minor changes were made and every effort was put forth to get the plan into operation, only to be met with delay after delay on the part of the federal bureau in charge. Finally, in desperation, Governor Martin was approached for aid in getting state funds for the plan. Seeing benefits of the proposal, he appropriated \$50,000 of state funds so that the plan could be put into immediate operation. Federal funds were finally forthcoming, with temporary approval for five months.

After about six months operation, under a plan which referred these cases to orthopedists in private practice on a fee schedule basis with fees approximately half of the ordinary fees, the interference began. A representative of the federal bureau looked over the arrangements, decided that the state should have an orthopedic supervisor, and of course intended that the supervisor should come from Washington, D. C., with salary to be paid from the funds provided for care of crippled children of the state.

This move was strongly opposed on grounds that a local man would obtain far better co-operation, would know local situations far better and would be able to do the work for much smaller salary, thus conserving funds for actual care of children. The committee was finally permitted to name a Seattle orthopedist as supervisor.

After another period of relative tranquility the same representative of the federal bureau again looked over the situation in Washington state and criticised operation of the plan on basis of administrative costs. Criticism was aimed not at care being given the children, not at results being obtained, not at professional

service but at the fact that the administrative costs were too low! This federal agent stated that too small a portion of funds provided for care of crippled children was going to administration and office expense! This criticism was based on the fact that in other parts of the country statistical studies had shown administrative costs for similar plans to be higher than those in the state of Washington. The criticism was based purely on a study of statistics and not on a study of efficiency of operation or, what would really be significant, a study of actual benefits to crippled children. So far as can be determined, the latter study does not seem to interest those in Washington, D. C.

A few months ago word was received from the Washington, D. C., bureau that fees were too high and a cut was ordered. While most of the men working under the plan felt that they were already making considerable sacrifice in order to carry benefits of the plan to as many crippled children as possible, they did put through a cut of from ten to twenty per cent in fees in order to keep the plan in operation and avoid trouble with the federal bureau.

Most recent pronouncement from Washington, D. C., is to the effect that the fee schedule should be abolished anyway and certain doctors be put on salary to do the work. Eventually some members of Washington State Medical Association, who have seen what is happening in other states, feel that abolition of the fee schedule is desired in Washington, D. C., because other states have begun to ask for a fee schedule like that which has worked so well in Washington state. They feel that the federal bureau may not want to go to the trouble of setting up fee schedules for the other states.

In all discussions of operation of the Washington state plan there has not been one single criticism of the service being provided for crippled children of the state. There has not been the slightest suggestion that better care could be provided or that more children could be helped. The patient has been the last consideration. All suggestions and criticisms coming from the bureau in Washington, D. C., have had to do with administration and organization. There is growing in the state of

Washington a feeling that the federal bureau is slowly reaching and grasping for control which will spread to other phases of the practice of medicine and which may finally become absolute. There is growing also the feeling that crippled children of the state are actually being exploited for the benefit of bureaucracy in Washington, D. C.

Editorial, *Northwest Med.*,
Aug., 1938.

THE COMBINED ORAL AND RECTAL ADMINISTRATION OF PARALDEHYDE DURING LABOR

(Concluded from page 200)

TABLE I

RESULTS IN 280 CASES REPORTED				
Group A Amnesia and Analgesia	Group B Amnesia and partial Analgesia	Group C Memory of Events No pain	Group D Memory of some pain	Group E Little or no relief
224	38	7	6	5
80%	14%	2.5%	2.1%	1.8%

In 1000 cases treated by rectal administration alone, 94% remembered no pain. In this smaller series, the combined oral and rectal method completely relieved the pain in 96.5% and produced absolute amnesia in 94%. The most noticeable improvement in the combined method over rectal administration alone, has been in the short, multiparous labors.

Thirty-one babies did not breathe promptly, but all responded readily to resuscitation by oxygen. The fact that the odor of paraldehyde is sometimes present in the babies' breath for one or two days after birth was somewhat disturbing at first. Careful observation, however, showed that these babies showed no drowsiness or other effects of the drug.

The average length of time between the first dose of paraldehyde and the appearance of the presenting part at the outlet has been, in primiparae, 17 hours and 26 minutes; in multiparae, 10 hours and 42 minutes. The duration of labor in primiparae ranged from one to 50 hours; in multiparae from one-half to 20 hours. The number of doses per case was from one to 10, the average being 4 in primiparae, and 2 in multiparae.

Two tragic mistakes have occurred which resulted in death to mothers. A patient of one of the authors (H. F. K.) was given three rectal instillations of formaldehyde. In the other case, a colleague ordered "benzyl alcohol 1.5

e. c.," The order was read, "benzyl alcohol 115 e. c.," was so carried out and was so charted. Gross errors such as these are inexcusable and do not detract from the value of the method here described. They do, however, emphasize the need for meticulous attention to the proper administration of drugs in all instances and as DeLee has pointed out, that in deliberately inducing unconsciousness we must accept added responsibility.

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INTERSEXUALITY

William H. Rubovits and William Saphir, Chicago (*Journal A. M. A.*, May 28, 1938), studied clinically, physiologically and psychologically a case of intersex, which, according to the older nomenclature, may be classified as pseudohermaphroditism masculinus. Although a laparotomy was not performed and thus the absence of ovaries was not definitely established, this diagnosis would hold true even if some rudimentary ovaries were present, for the presence of both ovaries and testicles in one individual cannot be called true hermaphroditism unless there is definite evidence of gonadal function, such as the presence of both ova and spermatozoa. Microscopic evidence of testicular tubular atrophy and absence of spermatogenesis was enough to rule out the diagnosis of true hermaphroditism and to confirm again the fact that true hermaphroditism never has been found in

man. The authors' case offers several facts of interest. Here is a patient with masculin intersex, brought up to be a woman, suffering from intense libido toward the male sex and masturbation. The question arises whether sexual desire is a manifestation rather of environmental influences than of gonadal function. The fact that sexual tension was relieved by orchidectomy could be evaluated in favor of the assumption that the gonads are responsible for sexual desire even if expressed toward the same sex. The common embryonic origin of ovaries and testes, the near chemical relationship of androgenic and estrogenic substances, which are found excreted by both males and females, and the favorable effects of castration in homosexuality are factors that would interpret libido as a specific manifestation of gonadal activity, no matter toward which sex they are expressed and no matter as to the environmental influences. The case, furthermore, offers interstitial testicular function apparently was not disturbed in the patient in spite of the marked tubular atrophy and absence of spermatogenesis. Interstitial hypertrophy was very marked, as evidenced histologically. No satisfactory explanation can be given at present for that phenomenon of mild heterosexual symptoms and varying degrees of features in women. Recently Koch and his associates found that women with hypertrichosis and virilism were excreting considerably more androgenic substance than normal women. It may well be conceivable that the presence of such aberrant or misplaced embryonic testicular tissue in women may give rise to a quantitative imbalance of gonadal hormone production and to the appearance of heterosexual symptoms. Titration for gonadal factors has not yet been adequately undertaken in such cases. It seems, however, more than a coincidence that manifestations of virilism always show involvement of either gonads or the adrenal cortex and always are characterized by marked heterosexual symptoms. It is to be hoped that further studies of this kind may throw some light on the etiology of heretofore unrecognized mild forms of intersexuality in women.



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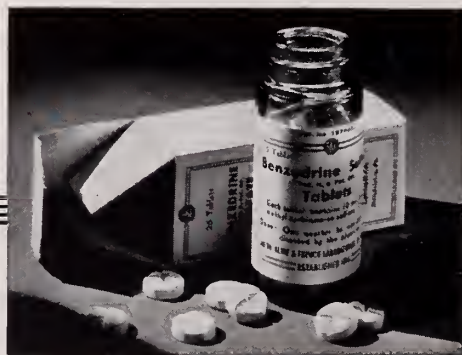
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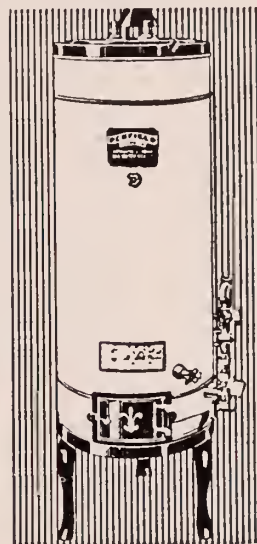
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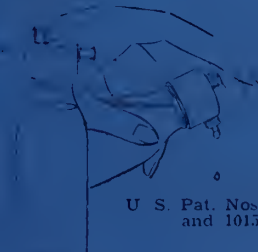
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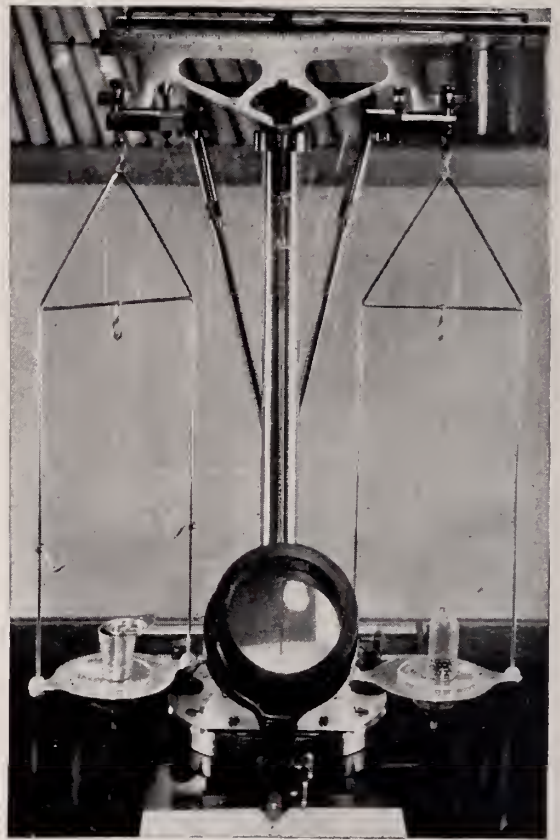
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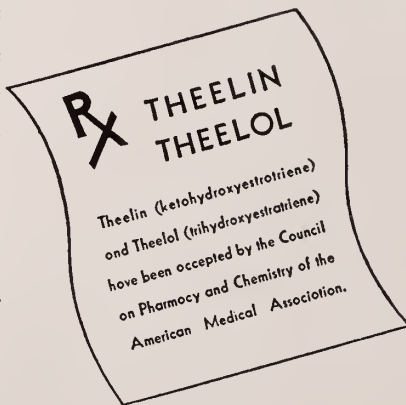
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● The years since 1932, when the P-P factor was known variously as vitamin B₂ or G, have been especially marked by contributions to our knowledge of the anti-pellagic vitamin. Considerable progress has also been made in the treatment of human pellagra as well as in the control of the disease. It might be of interest to review briefly a few of the outstanding developments in this field.

The P-P factor is now accepted as being closely related chemically to nicotinic acid if, indeed, it is not identical with that compound (1). Nicotinic acid has been used successfully in the treatment of human pellagra (2) and there is evidence to support the belief that the P-P factor is intimately associated with essential enzyme reactions in the body (3). A laboratory test has been devised for the early clinical detection of pellagra (4) and there is today better agreement as to the basic dietary requirements for the management of florid pellagra (1).

While the situation as regards endemic pellagra has, in general, shown improvement during recent years, an occasional report indicates that endemic pellagra still constitutes a major medical problem in some localities (5). Authorities agree that the old adage relating to an ounce of prevention being the equal of a pound of cure applies particularly well in the case of pellagra. Consequently, in specific regions of this country certain control measures have been advocated in an endeavor to bring this deficiency disease under permanent control. The most promising of these measures are

the issuance of yeast rations and popular education to the desirability of home production of foods rich in the P-P factor, especially during late winter and early spring. The problem of permanent control of pellagra has been clearly and briefly defined as follows:

"The prevention of endemic pellagra is simple in theory but difficult in practice. If every normal person received enough of the foods containing the pellagra-preventive vitamin there would be no endemic pellagra.—Permanent control can be obtained only by bringing about permanent changes in dietary habits" (1).

The correction of those long-standing dietary malpractices which are responsible for pellagra is certain to be brought about only slowly. The concerted and sustained efforts of all agencies concerned with public health will be required, not only to insure observance of the control measures described above, but also to educate the potential pellagrin to the necessity of a varied diet of protective foods.

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(1). 1938. J.A.M.A. 110, 1665.
(2). 1938. J.A.M.A. 111, 584.
1938. Ibid. 111, 613.
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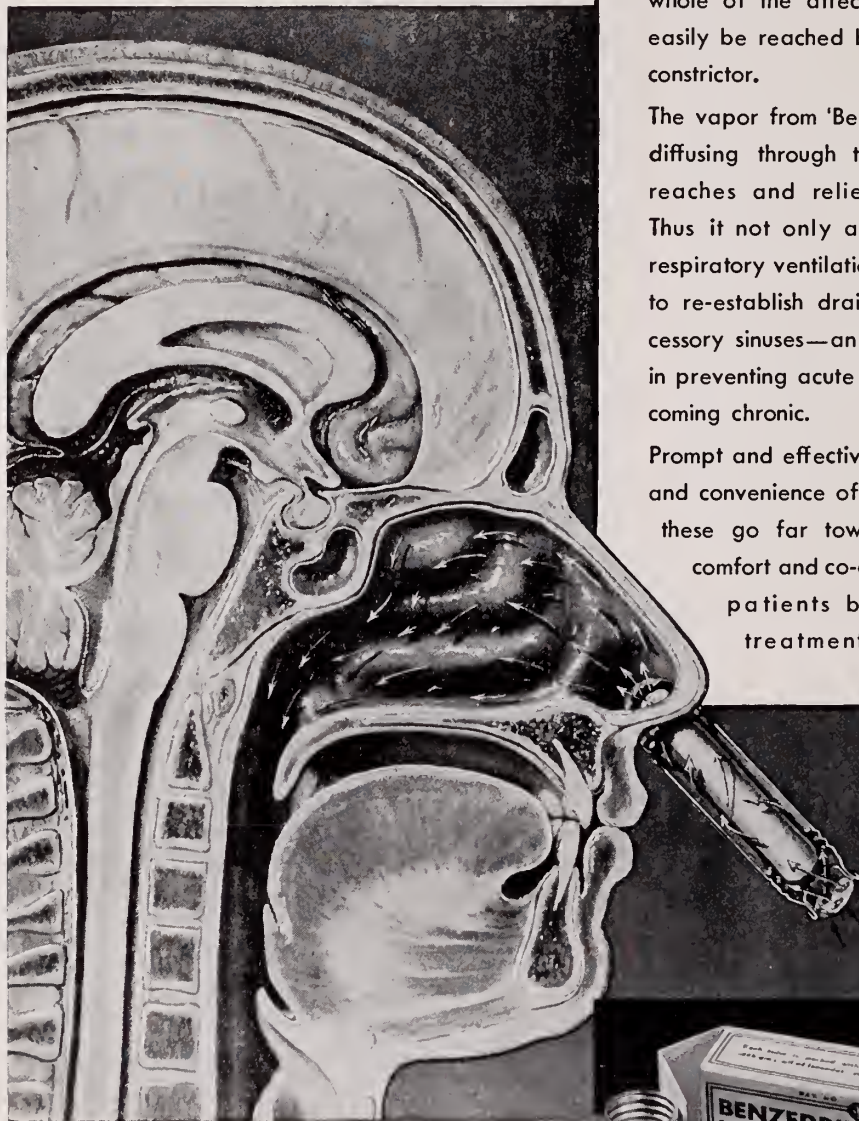
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(4). 1938. J. Med. Assn. State of Alabama. 8, 52.
(5). 1938. J. Med. Assn. State of Alabama. 7, 475.

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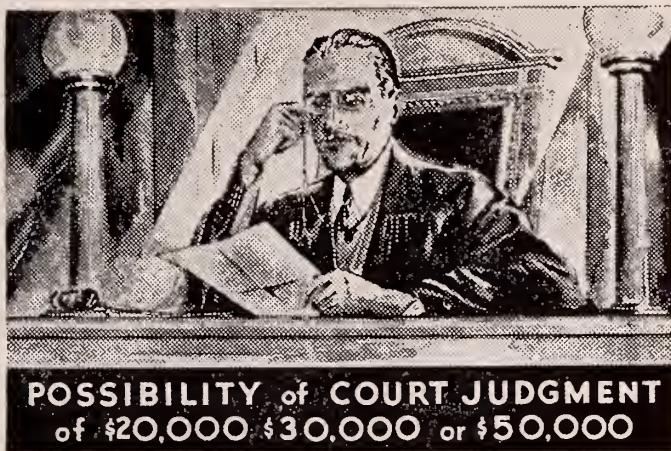
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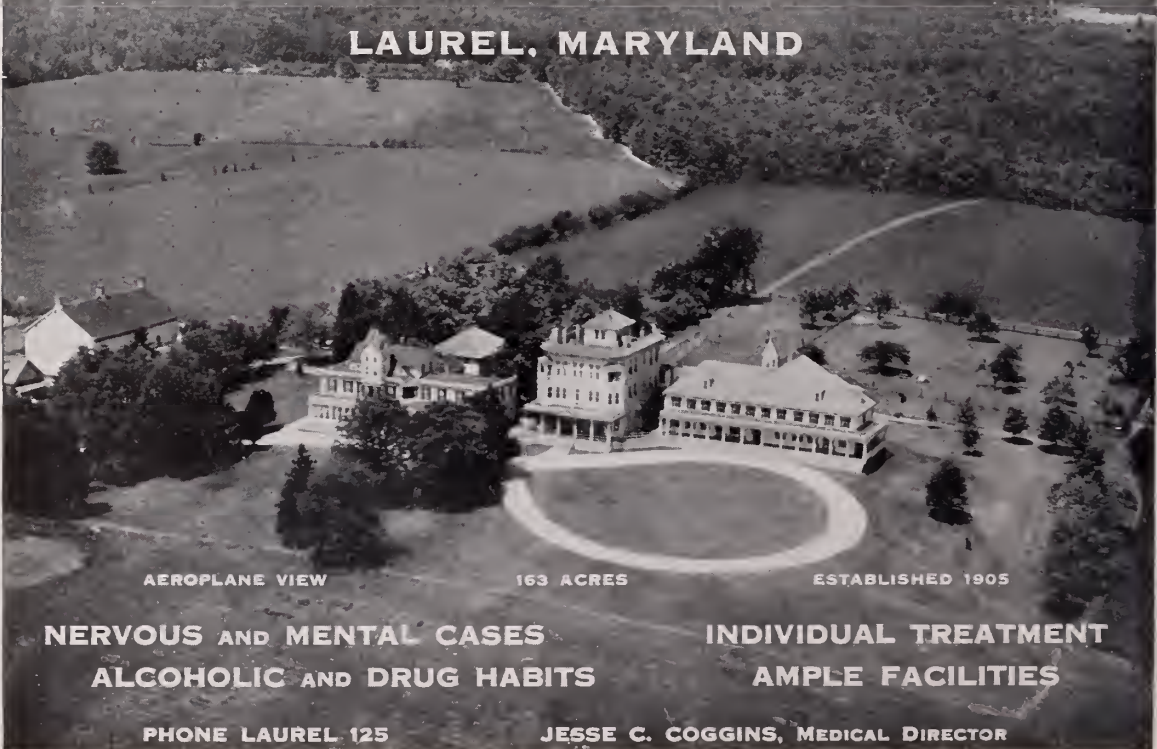
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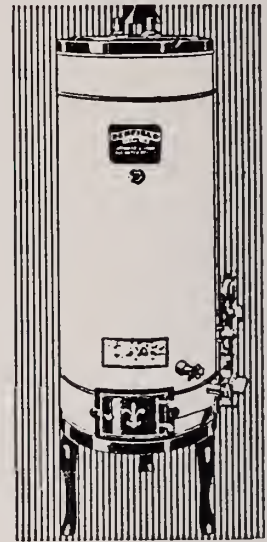
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THE MEDICAL APPROACH TO SEX INSTRUCTION IN THE SCHOOLS OF DELAWARE*

CLARENCE J. PRICKETT, M. D.
Smyna, Del.

Any physician of experience will vouch for the fact that many of the cases which come under his observation reveal conditions which developed as the result of ignorance. Some of such cases are attributable to ignorance of the true nature and function of sex. It is not difficult to find the reasons for sexual practices and attitudes which daily, in this supposedly enlightened age, are leading adolescents, and adults, towards economic ruin, physical disability, psychic disturbances, and spiritual impoverishment. From infancy most of our American children have been taught, directly and indirectly, that sex is nasty, that it is evil, and that it is a fit subject only for dark corners and low companions; and yet all of them have at the same time been constantly subjected to the calculated eroticism of the cheap magazine, commercialized vice, and many enterprises and activities which appeal to the idle romanticism or the low tastes of the immature. The consequence of making sex discussion taboo for children and adolescents and of allowing them, without proper guidance, to be subjected to the stimulations of a civilization which seems to derive a large part of its entertainment from sex, is to allow our children to drift into the limbo of illicit relations and anti-social practices. Who but the physician is in a position fully to realize, in all of its ramifications, the enormity of the social problem thus created? As physicians, we have long been concerned with repairing bodies and minds damaged by the sexually unguided.

I believe the time has now come when we should concern ourselves with adequate measures to provide for sex education. Such a measure is the proposal that the children of Delaware be educated in the principles of social hygiene with especial emphasis on sex education. There seems to be little doubt but that some such program should be undertaken; on basic questions of procedure, however, there seems to be considerable confusion. If this paper contributes to the formation of policy by its warnings and recommendations, it will have served its purpose.

As physicians we could cite innumerable cases of young lives which were ruined by sexual ignorance, ignorance which brought in its train venereal diseases, undesirable, unhappy marriages, serious maladjustments which might lead to psychoses. We could cite such cases until those to whom sex instruction has been an unconsidered problem would wish to rush forth and "do something" without further reflection. But there, alas, is the point upon which all progress must hinge. More harm can be done in this battle for youth by the active participation of the crusader or by the activity of the inadequately trained than is being done by our present inactivity. Ill-considered experiments in sex education can have such unfortunate results that all progress in the communities affected would be blocked for years to come. Merely to rush forth and give information to youth is not enough. Youth would still be conditioned to the idea that sex is fundamentally unclean, and youth would still be tempted to put his new-found knowledge to illegitimate use. Many parents to their sorrow have found this to be true. In the *Readers' Digest* for September, 1938, one disillusioned mother testifies to this fact. She is forever conditioned against imparting any information to youth, because

*Presidential Address, delivered before the Medical Society of Delaware, Dover, October 12, 1938.

her own son used the information she gave him as the basis for a series of sexual experiences. The fault in this and similar cases, it seem to me, is that the emphasis has been upon giving information rather than instruction. Such a procedure is analogous to turning a boy loose in a laboratory with information as to how to mix dangerous chemicals but without instruction as to their potentialities for good and for evil. More harm has been done to the cause of sex education by its too eager friends than by all of its enemies. The problem has waited a long time for solution; there is nothing to be gained by precipitate action; there is certainly much to be lost by poorly-advised action.

Because it is peculiarly within our province to know the great potentialities of sex both for evil and for good, we physicians must accept the responsibility of seeing to it that no irreparable damage is done by inadequate or misguided teaching; we must, of necessity, take the initiative in surrounding the movement for sex education with all of the safeguards that scientific thought can provide. True it is that sex education, successfully carried out, would pay society for its cost, however great that be. In the reduction of venereal diseases alone, the returns would be immeasurable. But such education, rashly or poorly attempted, would be costly to society even though it were achieved without any increase in our educational budget. Our not inconsiderable influence in our respective communities must be brought to the support of those who are working for a program of social hygiene in the Delaware schools, but we must be insistent upon the observance of precautions to keep the program on a safe, sane footing.

The first step contemplated is the education of the parents as to the necessity for sex instruction in the schools. I agree that their approval and cooperation are necessary. We should enlighten the parents as to anything the schools propose to do. In this instance we should go further. We should teach the parents their duty to the children in the home. Through adult education groups we should instruct the parents and any other adults who are responsible for the guidance of children in the home as to how they can best impart

knowledge in response to the questions which all children are likely to ask. If we are to make the beginnings of a normal, right attitude toward sex, the parent of whom such questions are asked must answer them without evasion, and the answers must be accurate, natural, satisfying. This is a parental duty that cannot be safely delegated, because no satisfactory reason has ever been invented as to why the child should wait for an answer. Putting the matter off by such makeshift answers as: "You will learn all that when you are old enough," or "You must never mention such things" only serve to turn natural curiosity into a morbid desire to know, until the child's whole attention is focused on the forbidden subject.

This danger of focusing the child's attention on sex must be foreseen in any part of a sex education program. Steps must be taken to insure against placing any emphasis that would arouse the child to unhealthy imaginings or practices. Even the act of instituting a sex education program in Delaware, with the attendant discussions, must not be brought to the attention of the children themselves. Sex would thus be thrust before them as a problem, rather than as a normal thing to be considered without excitement. Sex is a problem, but it must be the problem of the adult who has the guidance of the child at heart. Rather than to begin a program under the label of sex education, it would be better in our dealings with the public to omit all reference to sex as a separate consideration, to refer at all times to the program as "education for social hygiene." Only in this manner can undesirable attitudes be avoided.

It is always held that moral health, no less than physical and mental health, is a personal asset of the greatest social significance. If we are to use the public school as an agency for instruction in social hygiene, we must make sure that the materials of instruction, the instructors, and all school contacts are such as to insure adequate physical and mental growth under the steady influence of increased moral perceptions.

While we are waiting for an organized program to be agreed upon, there is one thing which can be done everywhere, a thing which, to me, is fraught with possibilities out of all

proportion to its simplicity. It is merely this: to provide for the mingling of the sexes at every age level under circumstances which will make the sharing of daily tasks and pleasures in itself a normal satisfying thing, quite apart from a consciousness of sex. Mutual aid, mutual appreciation, a community of interests, would do much to erase the evils of segregation, to substitute a mutuality of living for the mutuality of sexual curiosity and stimulation. It is normality we are striving for in the entire learning process. These principles of sex ethics must early be instilled in the minds of every pupil. They are the prerequisites of success in social hygiene, especially in those phases which have to do with the imparting of knowledge in such subjects as may properly lead to a consideration of the processes of fertilization in flowers and in animals, and of procreation in human beings.

I have been much concerned with the questions which must be answered before we can formulate a program. Whom shall we teach? What should we teach at the various age levels? Who shall teach it? There are some persons who have with great facility answered these questions. Yet reflection tells us that the answers given with such ease are seldom the true answers. We are dealing in human values, with unpredictable factors which make answers unreliable. We cannot afford to be dogmatic.

But it seems safe to say that every one educable should be taught directly and indirectly the rudiments of such knowledge as will make for better social hygiene. At all age levels the child's honest search for knowledge, his natural curiosity, must be satisfied, satisfied at once without prudery, and most certainly, without the sacrifice of any of the innate modesty which is the chief charm of human relationships. But under no conditions must information be forced upon the child, even by the most adroit of teachers.

If such a prohibition be accepted, as I think it must, we see the folly of drawing up a syllabus for social hygiene for our grammar schools. We cannot say that every fourth-grader, as does the so-called "Florida Outline," is ready to receive and profit by the knowledge of how animals reproduce. Nor can we say that every child in the eighth grade

who is taught prenatal development and the development of the reproductive function, as the same outline suggests, will thereafter have an attitude toward sex that is normal for that age level. A syllabus is an arbitrary set of recommendations to which a teacher is bound. Any proposed program should be flexible enough to meet the needs of the individual. The question of who is to determine those needs is an open one.

Besides inflexible outlines of what should be taught we have been presented with ill-considered solutions of who shall do the teaching. For example: 1. We are already paying our regular staff to teach; let them do it. 2. We have a school nurse; who is better qualified? 3. Let the school superintendent, or an outside expert, give little talks from time to time. 4. Put some good books in the pupils' hands. Let us consider these proposals rather closely.

If we had the teachers in each school, who, by reason of training, temperament, good sense, and those qualities which cause the students to love and respect them, were fitted for the work, I should say it would be desirable for the teachers, overburdened though they may now be, to accept this further responsibility. If there were enough suitable teachers I should say let them handle a full course in social hygiene. But the inescapable fact is that there are very few such teachers. In fact, there are very few such persons. It is better to have no instruction in the sexual phases of social hygiene than to have information given to students by untrained, embarrassed, abnormal, or unrespected teachers. The idealism of youth cannot be aroused and fostered that way. Even though a teacher were to meet all requirements except that of specialized training, that teacher would still be unsuitable until the specialized training had been given.

The school nurse is even more poorly prepared to do what we wish done in our Delaware schools. True, she knows "the facts of life;" she has seen the phenomena of pregnancy and birth; she is conversant with the problems arising from sex, at least in respect to such things as venereal diseases. But that does not make her a fit teacher of youth, one in whose hands is to be placed the trust of

molding our young men and women. She can at the best, or worst, merely give information. And that alone is worse than useless.

The other suggestions as to who shall teach have this fault among others: they serve to center an unhealthy attention on sex. To give isolated talks or lectures, no matter by whom, is to give sex prominence. To put sex books into the hands of students would do the same thing, with the added disadvantages of supplying information without a chance for interpretation or the correction of wrong impressions.

We are indeed faced with a problem difficult of solution. Yet the problem must be solved, whatever the expenditure of time and money. Fortunately our state is so compact as to size, and its administration of education so admirable, that I feel safe in making certain recommendations.

Inasmuch as we do not have men and women in regular teaching positions who should be entrusted with the most vital parts of a social hygiene program, and inasmuch as it seems inadvisable and inexpedient to bring into the schools for brief periods an expert in sex matters to teach the children directly by isolated lectures, I propose the employment by the state of Delaware of an adequate number of men, not less than one for each of the counties exclusive of Wilmington, and certainly not less than two for Wilmington, whose duties shall be the formulation of principles to govern the social hygiene program, the selection of suitable teachers from the school systems and the training of those teachers, and the meeting with all other teachers and with parents, singly and in groups, for instruction in social hygiene. The men selected for these positions would ideally be physicians with special training in psychiatry, family men mature in attitudes and opinions, who could unobtrusively lead in the development of character based on sound knowledge and practice. The psychiatrist should be able to spend enough time in each school so that he could become a familiar figure to, and friend of, the teachers and pupils. This seems to be the only solution to the problem of how best to regulate the dissemination and diffusion of vital knowledge. The employment of

scientifically trained men would be a practical step of great moment not only in regards to their work in organizing social hygiene procedure but also in regards to their specialized services in the training of teachers for certification in this phase of education.

I am not unmindful of the practical difficulties in the way of securing an allocation of funds sufficient to carry out this program at once and to the full. Much depends also upon finding a sufficient number of men with the qualifications I have indicated. Men of that caliber usually have lucrative practices which they would not care to give up. But I feel that if we could make a beginning with one man in one section of the state under the conditions and with the prohibitions I have outlined, we could demonstrate that the plan is feasible, socially valuable, and worthy of extension to include the whole state.

To these, and there will be many, who object to the cost, I can only say that the hazard in any phase of education is that it may cost, not too much, but too little. Cheap education is seldom of any value either to the individual or to society; it may prove a positive danger to both.

As you are aware, it is customary for your President to address the Society, and it is also customary for the members not to discuss his paper during the session. I propose, with your approval, to modify the usual tactics, to this extent:

I ask you to authorize your President to appoint a special committee of five well-qualified members of this Society whose duties shall be the further development of the medical approach to sex education in Delaware, first, by securing from reliable sources such as the Federal Bureau of Education and those in charge of progressive programs in such states as Colorado and Michigan, information concerning the employment of psychiatrists in this field and the results to date; second, by formulating a definite set of recommendations through study of available facts along the lines suggested by this paper; and, third, by presenting these recommendations to a committee representing all of the interested groups in Delaware, as, for example, the State Board of Education, the Board of Education

of the City of Wilmington, the State Board of Health, and the Parent-Teachers' Association.

I, as President of your Society, seek your understanding and cooperation in this vital problem to the end that we shall do all in our power to see that no costly mistakes are made in Delaware. Our state is now one of the leaders in education among the forty-eight states. As physicians who recognize the importance of sex education to the well-being of the state, we must do everything reasonably within our power to further that leadership in establishing a model program for social hygiene. It is a challenge to us and to our schools that we cannot afford to ignore.

INDUSTRIAL LAW AND THE MEDICAL PROFESSION*

JAMES B. McMANUS**

Wilmington, Del.

Compensation laws are not insurance schemes, nor mere vehicles for distributing charity, nor do they take money from the employer and give it to his employee without due process of law. They are based upon equally balanced legislation working for the benefit of both employer and employee. These laws are modern instrumentalities created for the purpose of administering law, calculated to disseminate an equal social justice among all men and women.

The Workmen's Compensation Acts of most states provide for reasonable and/or necessary medical, surgical and hospital services at the employer's expense, but limited as to time and amount, and leaving the question of reasonableness or adequacy to be determined by the body administering the act.

The main purpose to be accomplished by the medical benefit provisions of a compensation law is to cure and relieve the employee from the effects of the injury as quickly as possible and at reasonable expense. It is contended that it is to the interest of the employer to furnish the very best medical and surgical treatment in order to minimize the result of the injury.

The danger of incompetency on the part of the physician provided by the employer

is quite remote as it is greatly to his interest to provide such service as will most quickly discharge the injured employee from the non-producing ranks. Therefore, the law should be so applied as to secure to both the injured employee and his employer reasonable opportunity to conserve their mutual interests, which can be brought about by the supervision of the administering agency of the state. The natural effect of such procedure is to expedite the return of honest claimants to the walks of industry and prevent their misfortune from being exploited. And the advantages of this policy, if greater on one side than on the other, would appear to be on the side of the injured employee.

The obligation to "furnish reasonable surgical, medical and hospital services, medicines and supplies" during the "first thirty days after the injury" is one conferred upon the employer, which duty must be performed or reasonable efforts made to that end. The word "furnish" imports something more than a passive willingness to respond to a demand. It implies some degree of active effort to bring to the injured person the required relief. Reasonably sufficient provision for rendering the required service must be made. It should be brought to the attention of employees where such services are available in case of injury. Notices should be posted in conspicuous places, and such notices should be readable to at least a sufficient number of the employees to call the attention of all to their rights with regard to medical attention in case of injury.

Nevertheless, the law does not cast upon the employer the duty of active vigilance to discover cases of personal injury to their employees, but casts upon the injured employee such vigilance as they can reasonably exercise to bring such injuries to the attention of their employer as to need and desire for medical and surgical treatment. In other words, actual knowledge of the occurrence of the injury or notice had of same by the employer is a requisite for compensation and medical service, it being the legislative intent that the employer be permitted to furnish a physician or surgeon of his own choice, and if his selection be such as would satisfy a reasonable person, the employee would be personally liable for services rendered by any other physician

*Read before the Medical Society of Delaware, Wilmington, October 13, 1937.

**Secretary, Delaware Industrial Accident Board.

or surgeon. In the event that the medical and surgical attention provided was not considered competent or sufficient, redress can be had before the administering body as to its "reasonableness" or being furnished "as and when needed." And should the employee's incapacity or any part thereof be the direct result of unskillful medical treatment on the part of the employer's physician or surgeon his remedy is against the persons answerable therefor under the general law. On the other hand, should an injured employee abandon the medical and hospital service supplied by the employer and secure other treatment of his own choice, he does so at his own risk and his own expense unless he can satisfy the administering agency that the service supplied by the employer was unreasonable and inefficient or inadequate to such an extent as would justify the abandonment of it.

The problem of furnishing surgical, medical and hospital services, medicines and supplies is one of passing interest to hospital authorities and members of the medical fraternity and the cause of considerable contention before the administrators of Workmen's Compensation laws. The question arises as to whether the date of the accident is the date of the injury and therefore the time from which the statutory period of thirty days shall be reckoned. Also, whether the limitation period of thirty days shall be computed from the date when the result of the injury culminates in actual disability requiring medical treatment. The language of the Delaware statute, and reason, would seem to authorize the conclusion that medical and surgical services, as well as hospital, were intended to be rendered after the injury, which should be such as to indicate a physical injury requiring the services of an attending physician or surgeon. As to the additional services, there are certain conditions, such as application to the Board and determination of the character and length of the services to be furnished, that must be complied with, otherwise a charge against the employer for such additional services is without authority and the employee is personally liable.

As to negligence, improper treatment or malpractice on the part of the physician or surgeon, provided by the employer, it is gen-

erally held, inasmuch as it is incumbent upon the employer to furnish medical, surgical and hospital services, any aggravation of the injury and subsequent increase in disability due to such negligence, improper treatment or malpractice on the part of physician or surgeon, without any fault of the injured employee, is a legitimate expense of the employer even as to lack of skill or error of judgment. The remedy under the general law of negligence is available but not very practical. Conversely, if an injured employee receives negligent, improper or malpractice treatment by a physician of his own choice or should he fail to follow the directions of the employer's physician and his disability be prolonged, he must pay for the consequence.

The question as to whether a surgical operation is reasonable medical treatment or refusal of same is a legal right of the injured employee depends upon the facts of each case. It is true that a claimant for compensation owes it to himself and society in general to make use of every available and reasonable means to make himself whole. The law seems to be well settled that an injured employee seeking compensation must submit to an operation which will cure him when so advised by his attending physician, if there be no danger to life or health and no unusual risks. It is his duty if it fairly and reasonably appears that the result of such operation will be a real and substantial physical gain. Where, however, it appears that a risk of life is involved, although such risk is slight, a refusal to submit to an operation is not unreasonable. The idea is appalling that a human being should be compelled to take a risk of death, however slight it may be, in order that obligations of an employer be reduced. But to refuse to undergo a safe and simple surgical operation, which is fairly certain to result in a removal of disability for work and is not attended with serious risk, and is such as an ordinarily prudent and courageous person would submit for his own benefit and comfort would appear to be an unreasonable refusal. This is particularly true of employees suffering from inguinal hernia as the result of an accident, in view of the fact that hernia may be successfully cured in the great majority of cases by submitting to an operation and which is at-

tended with little if any danger. The removal of cataracts to restore vision is an operation highly successful with no unusual risks from the nature of the operation proposed. Refusal to submit to an operation where there is doubt of success and beneficial effects not at all certain would not seem to be acting unreasonably.

What scope does the phrase "reasonable medical surgical and hospital services, medicines and supplies" cover? Does it include all the means and instrumentalities that are used to help effect a cure? Are splint, crutches, holding apparatus, trusses, false teeth, glass eyes and artificial limbs in the category of supplies? It may be said that some of these appliances are necessary in the proper treatment of an injury for the first thirty days and even where additional services have been granted, but does the law contemplate the furnishing of an artificial arm or leg or eye for one that has already been compensated for? It has become so common for a physician or surgeon to have a nurse as his assistant that such services are an incident to the treatment. Are the services of a nurse such as are reasonable after the physician or surgeon or hospital have ceased rendering service? There would not appear to be any warrant under the law for such services, other than incidental to medical or surgical attention. A discussion of this subject would be illuminating in view of the increased demand for a broader interpretation of this phrase.

Although heretofore lightly touched upon, it would probably be of some interest to those present to have a few words relative to fees, charges and recovery of same under compensation laws. While the administering agency of the state is given authority to arbitrate differences over fees or charges, no authority is given to award for medical services in excess of the amount limited by the law. Where the employer or insurer voluntarily incurs expense for such service in excess of the statutory amount, such excess cannot be deducted from the amount of compensation to which the injured employee is entitled. Should the employer refuse to meet the obligations, it is the practice to pro-rate the total amount of the fees or charges to the statutory amount

provided. As to recovery of fees by physicians and surgeons, it would appear as a matter of precaution that they should notify the employer of their patients of the service being rendered while such service is being rendered. In laws making the employer liable for reasonable medical expense, as in this state, the physician or surgeon is permitted to recover in a direct action at common law against the employer for the liability under the statute. But no action will lie against an employer to recover for medical treatment rendered to an injured employee by a physician who has not been requested to furnish such treatment to the knowledge of the employer.

A field that has been but little considered as within the purview of the compensation law of this state and which has been broadened by a recent act of the General Assembly is that of occupational disease. Generally speaking, an occupational disease is one contracted in the usual and ordinary course of events, which from the common experience of humanity is known to be incidental to a particular employment. But for several years the law has been construed to include anthrax contracted under certain conditions and the interpretation has been accepted by both employer and employee. Other minor ailments such as dermatitis, chrome bites, ivy poisoning, and bursitis arising from and in the course of the employment have also been compensated for. Other diseases recognized as occupational have been brought within the definition of the term "injury" and "personal injury" as related to violence to the physical structure of the body in man's effort to earn a livelihood. In the determination of the right to payment of compensation for such diseases the medical profession will undoubtedly be called upon to take a leading part, not in unraveling the ambiguity of terms under which the diseases are to be classified, but in establishing the wages and length of contact by the employee with the disease producing the disability. Anthrax, with restrictions removed except arising out of and in the course of the employment; lead poisoning in all its phases, bring a subject of controversy; carbon disulphide and hydrogen sulphide poisoning, arising out of artificial-silk production; mercury, arsenic and phosphorus poisoning through processes involving

the use of or direct contact with these chemicals or their preparations or compounds; and poisoning by wood alcohol or benzene—these are among the occupational diseases coming within the purview of the recent amendments to the Delaware Compensation Law. Silicosis, prevalent among dusty-trade employees, is still a debatable and acute problem. Factors other than the concentration of dust alone, seem to play a part in the development of this disease. Just what the factors are and how much of a part they play remains to be definitely determined. Prolonged study and medical observation will be necessary before we can do other than decide each case upon its own merits.

In closing, it has occurred to me that the opportunity afforded your profession to aid in the rehabilitation of those who come under your observation and treatment is one that cannot be turned aside. To be in a position to help make disabled persons self-supporting and by the restoration of their earning capacity regain self-reliance; to become citizens once more productive industrially, by encouraging them to enter different activities of life; to show them there is no such thing as "no hope;" and that they can take their places among men, not as objects of charity but as self-reliant citizens—these are worthwhile objectives.

DISCUSSION

DR. G. B. PEARSON (Newark): I did not get it to hear the start of the paper, but I would like to ask about that thirty-day period. I was under the impression that the compensation extended for medical treatment over a thirty-day period.

What about the compensation beyond that—after the thirty-day period. Supposing a man was disabled for six months, and required care? Would the doctor be paid by the employer?

DR. D. T. DAVIDSON (Claymont): I must also introduce my remarks, as Dr. Pearson did, by saying I missed the first part of the paper, for which I am profoundly sorry, because I had looked forward to it.

As to the thirty-day question, I know it is customary, in case of treatment beyond the first thirty days, to request an extension, which the Board usually grants, and I must

admit that I misunderstood Mr. McManus as to whether or not you have authority to order the doctor be paid and the hospital be paid beyond that first thirty days.

There was another question which Mr. McManus touched upon which was not altogether clear to me. After a man is cured medically, and then needs rehabilitation, does that additional expense for massage, for instance, and physiotherapy, come within the scope of the law? Does the supplying of glasses come within the scope of the law if there is a defect for which a man is being paid?

DR. G. W. K. FORREST (Wilmington): I would like to ask Mr. McManus whether or not the occupational diseases are listed in your Board, or whether you have to determine. You did not quite make that clear to me—whether each case is decided upon its merits as it is presented to your Board. In other words, are your occupational diseases mentioned in your minutes which you might keep as your records?

MR. McMANUS: I will take the first question, as to the thirty-day period. For the first thirty-day period the law allows one hundred fifty dollars to cover all medicine, hospital supplies, medical expenses, and so forth. Any expense in excess of that is either a direct loss to those administering the services or will be paid for by the injured man.

If the injured man or someone in his behalf makes application to the Board for additional medical services extending beyond the first thirty-day period, the Board may grant that for such time as they deem advisable, usually for a thirty-day period at a time.

Does that answer your question?

DR. PEARSON: I think so, Mr. McManus, but in the case of a broken leg, for instance, a man would be needing treatment much longer than thirty days. Does the Board set a fee for that?

MR. McMANUS: No. The Board does not set any fees except when the Board calls in the medical man for testimony, when, I believe, it can set the munificent sum of five dollars. (Laughter) Setting the fee of the doctor is not within the power of the Industrial Acts Board, and I believe the Board prefers that the application for additional medi-

cal care be made by the attending doctor or surgeon, or, if not, by the hospital doctor.

Now, when they make that application, unless there is some substantial objection on the part of the employer or his representative, it is granted. As a matter of fact, on every application for additional medical care, the employer or the employer's agent is contacted, and they have the right to object or to agree to it. So far I have had very few who objected to it.

Does that answer your question?

DR. PEARSON: Yes.

MR. McMANUS: Now, then, Dr. Davidson, you want to know about glasses. The Board does not have authority to authorize any mechanical appliances at all. I think the insurance companies who represented employers some years ago agreed to pay one-half of the replacement cost of teeth. They voluntarily assumed that. I forgot your other question.

DR. DAVIDSON: The other was a question of money after the first thirty days—of extension.

MR. McMANUS: The extensions are practically unlimited. The only thing about the extensions is the Board's decisions as to whether they will grant them or not. The Board has the authority to decide whether the additional medical services are necessary, and whether the rates charged are appropriate. That does not mean that they set rates, but they will not allow excessive rates. However, that is rarely done.

Now, then, Dr. Forrest asked me a question about the occupational diseases. The law extending coverage to occupational diseases sets forth in the Act the various occupational diseases that are covered. I cannot enumerate them to you just now, but only such occupational diseases as are set forth in the Act are compensable.

DR. FORREST: Suppose it is some disease that is not recognized in the Act. The Board would have power to determine whether or not that—

MR. McMANUS: Whether that comes within the purview of the Act. They would pass on that.

DR. FORREST: The Board would pass on that?

MR. McMANUS: Yes, sir.

THE TREATMENT OF PNEUMONIA*

JOHN J. CASSIDY, M. D.

Wilmington, Del.

In this paper I am going to show that there are some therapeutic measures which are of value in the treatment of pneumonia, and that the present state of our knowledge of the subject indicates that we should treat the underlying pathology. It is true that the condition is a self-limiting one, and this fact was the basis for treatment which was designed merely to support the patient. It is true that the condition will take care of itself, but why subject the body to the insults due to the pneumonitis when we have at hand remedial agents which directly affect the condition?

Specific drug therapy, the search for which has been pursued since the first description of the condition, and is still being carried on, certainly has given but very meagre results and must be classified as a failure. For proof of this, it is necessary only to examine the great number of drugs heralded from time to time as being specific, only to be discarded after a more complete trial. This includes the drugs which were supposed to directly affect the condition, as well as those proclaimed as beneficial due to their anti-bacterial properties as demonstrated in vitro and in animals.

With the isolation and positive identification of the pneumococcus as the etiologic factor of the disease, the attention of investigators was directed towards the finding of a biologic specific. The result obtained was only partially successful. Two reasons may be given for this: (1) the insufficient classification of the organism causing the condition; and (2) the great length of time necessary to classify the organism.

The organism has been isolated in thirty-two different strains. For most of these strains at this time, we have no specific anti-serum which is of value, but for Type I and Type II, which are the causative factors in 60%-70% of all the pneumonias seen, we have a serum which is of value. For Types V, VII and VIII the serum may be of value.

The length of time necessary to classify the organism formerly was 36 hours. This, with

*Read before the Medical Society of Delaware, Wilmington, October 12, 1937.

the technic of Neufeld, has been reduced to one hour. Bear the axiom in mind that the earlier these biologicals are used therapeutically, the better results may be expected. We have made a decided step forward since this technic was given to us.

The method of treating with anti-serum is:

As soon as the causative organism has been typed, and this should be done as soon as the diagnosis of pneumonia has been made, the individual should be tested for sensitivity, since this serum is prepared from immunized horses. A careful history should be obtained to find out if the individual has had any previous injections of any horse serum preparations, as well as finding whether there has been any hay fever, asthma, or hives. Even if a negative history is obtained, it is still necessary to test the individual.

This is carried out by injecting intra-cutaneously, a small portion of the diluted serum. In the sensitive individual there will be produced a wheal, surrounded by an area of erythema.

Another technic is to place one drop of the anti-serum, diluted 1-10 with saline, in the eye. In the sensitive individual there will be produced a transitory redness and inflammation of the conjunctiva. If either or both of these tests are negative, then the serum may be administered.

The serum is then warmed to body temperature and 10,000 units are slowly injected intravenously, followed in one hour by 20,000 units, and repeat 20,000 units every four to six hours until the temperature, pulse and respiration approach normal. To produce the crisis, it will be necessary to use 100,000 to 200,000 units. The physical findings at this time will be the same as those found at the time of crisis not produced artificially, that is, an impaired percussion note and showers of moist rales. These findings will persist for 3-4 days after the production of the artificial crisis. If at any time during this post-crisis period, the temperature rises to 102° or more, the serum should be administered again.

From what I have stated, it might be assumed that I am of the opinion that it is necessary only to treat pneumonia specifically and to forget all the supportive treatment. That is not so. It is just as necessary to institute

supportive treatment, even though using this specific treatment, as it was before the time when it was available. It is still necessary to relieve those stabbing pains of pleurisy, the distressing tympanities, the distension of the bladder due to retention of urine, the agonizing cough, the wildly racing heart, the anoxaemia, the delirium, the sleeplessness, all must be promptly relieved, if the patient is to follow a satisfactory course in combating the disease.

Relief of the pleuretic pain may be obtained by drugs, such as codeine or paregoric, but in some instances, morphine may be necessary. Of aid to the drug therapy here, is physiotherapy—the application of heat, either as mustard plasters, hot water bottles, or diathermy.

Abdominal distension is best treated prophylactically. A daily enema will, to a large extent, prevent this complication. If the distension persists, in spite of enemas, the insertion of the rectal tube often gives good results, as will the application of warm stoupes to the abdomen. If, in spite of these measures, the distension persists, then one of the preparations of the pituitary gland should be used.

The distension of the urinary bladder due to retention is treated by catheterization.

The treatment of the cough depends entirely on the stage of the illness. In the early stages, when the consolidation is in the process of formation, any attempt to relieve the cough with expectorants is contraindicated. At this stage, the sedative drugs, such as codeine and, in some extreme cases, morphine are the drugs of choice. Later in the condition, that is in the stage of gray hepatization, and in the stage of resolution, expectorant drugs should be used.

The heart in pneumonia is completely ignored by some therapeutically, so long as it is not showing the effects of the toxins produced by the process in the lung. Some others hold to the theory that it should be treated prophylactically with small doses of digitalis (gr. 1ss t.i.d.) from the very onset of the condition, and that we are not justified in waiting for signs of cardiac collapse before instituting cardiac therapy. No matter which school of thought we are going to follow, it is necessary to watch the heart very closely all

through the pneumonia. Watch it indeed even more closely than the lungs. If collapse is imminent or has taken place, then complete digitalization by the rapid method is necessary.

Anoxaemia is best treated with oxygen. It is necessary to combat anoxaemia speedily because it produces pulmonary edema, which in turn tends to increase anoxaemia; thus a vicious cycle is formed. Other results which are obtained by treating anoxaemia with oxygen are:

We are able to supply the body the extra oxygen necessary to care for the increased metabolism always present during this stage of the condition, and we are also decreasing cardiac effort which is quite necessary since the cardiac effort may be beyond the ability of the toxin-laden myocardium, and result in cardiac collapse.

A few words here as to the methods of using oxygen. It should be used in a concentration of not less than 35%-40% and not greater than 50%-60%. It is best administered in an oxygen chamber where the concentration can be regulated absolutely. Such chambers are not available to all of us, but the portable oxygen tent can be substituted for it with good results. In this the necessary concentration can be obtained. If the oxygen chamber and oxygen tent are not available, then the nasal catheter method of administration may be used. In using this method, care must be exercised to insert the catheter properly. It must be inserted to the level of the nasopharynx, but not beyond.

As to the time of administering oxygen. The rule is to give it at the first sign of pulmonary edema. The best criteria to determine this are a rise in temperature, the finding of evidence of moisture in the bases, and cyanosis.

The delirium and sleeplessness are overcome by sedatives, such chloral hydrate, the bromides, phenolbarbital, and, if necessary, morphine.

A method of treatment which, while not specific, can be carried out with any other form of treatment which has been instituted, is diathermy. This treatment gives so much relief to the patient that whenever it is available, it should be used. Either the conven-

tional long wave or the newer short wave current may be used, with expectation of achieving the same results. In our small series of cases of pneumonia treated with this method and supportive treatment, we could not quote any decrease in the death rate, but can state that after treatment, the patient was much more comfortable. The usual reaction was a profuse sweat, a fall in temperature of between 1°-2°, usually followed by a period of 1 to 3 hours sleep from which the patient awoke quite refreshed. The termination of the condition is by lysis rather than by crisis, and is accompanied by a very loose non-irritating cough productive of great amounts of pus. After a treatment, many of the patients commented on how well they felt and remarked on how they seemed to be free of pain.

In addition to specific therapy and treatment designed to give symptomatic relief, the general well-being and comfort of the patient must be maintained during the course of his illness. To bring this about, every measure of nursing care and medical treatment must be carried out with this as the first purpose.

Absolute rest is essential. The patient is not allowed to turn himself in bed, nor to raise himself on the bed pan. He should be fed rather than allowed to feed himself. Visitors should be restricted to a minimum, and if possible, prohibited. The room should be well ventilated and cool, yet not too cold. The head of the patient should be elevated. The bed clothes and gown of the patient should be changed when soaked. The mouth should be kept clean and clear of mucous with a satisfactory mouth wash.

Diet during the acute course of the disease is of no great importance. The course of the disease is relatively short, so that any attempt to maintain an adequate caloric intake is unnecessary. Fluid intake, however, must be maintained at a high level, the minimum should be not less than 3000 cc. daily. The protein intake per day should be approximately 1 gram per kilo. The carbohydrate intake should be high enough to prevent acidosis and to furnish nourishment for the myocardium. This high carbohydrate level can be maintained by fruit juices to which may be added, if necessary, glucose intrave-

nously. The chloride deficiency may be made up by giving salt. Milk and milk products may be included in the diet, provided there is no uncontrollable tympanities. Alcohol, especially in those patients accustomed to its use, is very beneficial, if used in small frequent doses.

Summary:

1. Specific biologic treatment should be used in pneumonia, as soon as the diagnosis is made, provided the causative organism is one which responds to anti-serum.
2. General supportive treatment should be vigorously carried out.
3. Diathermy is a form of treatment which should be carried out if available, regardless of what other course of treatment is followed.
4. Good nursing care is essential.

DISCUSSION

DR. JOSEPH R. BECK (Dover): Mr. Chairman, Dr. Cassidy has given a very excellent paper, and as a representative of the State Board of Health I feel that there is a field in which the State Board can be active in aiding in the treatment of pneumonia, by establishing typing stations throughout the state, in conjunction with the hospitals in Wilmington.

Of course, most of you men here are from Wilmington, and do not realize how difficult it is for the general practitioner to have sputum typed throughout the state. For the past few years we have been typing pneumonia sputums in Delaware. Last year we had twenty requests for typing, which were fulfilled.

The mass study of pneumonia by Lord and Henry has clearly shown that the mortality of Type I pneumonia, which is ordinarily twenty-five per cent without the use of antiserum, can be reduced to about ten or twelve per cent, and that the mortality of Type II pneumonia, which is about thirty per cent, can be reduced to about fifteen.

Recently, within the last year, Cecil reported a small series of cases in which serum was given within the first twenty-four hours, and he found that the mortality in this smaller series was reduced to eight per cent, which is really remarkable.

There was one point in Dr. Cassidy's paper about digitalization. He said that if you have

a failing myocardium the patient should be digitalized. I think that is still a debatable point, because the use of digitalis has not been definitely proven in a series of cases in New York City.

I think it was about 1932, at Bellevue, that they found that patients who were not digitalized did much better than patients who were. Other things being equal, they tried to run comparative controls.

If funds were made available, it would be well for the State Board to supply serum to all physicians free of charge, as New York is doing, and as Massachusetts has done for the last five years. Serum at present is very expensive, and to treat the average case, which requires at least eighty thousand units of antiserum, it would cost about thirty-two dollars, and at physicians' prices it would be double that. So that if funds were available I think they could well be spent in supplying physicians with Type I and Type II antisera provided the type case was known and the serum could be supplied.

I think it was a very excellent paper.

DR. A. C. SMOOT (Georgetown): I would like to ask a question. A few years ago I read some articles on the use of potassium permanganate in the treatment of pneumonia. I would like to know what the rationale of that treatment was—the purpose of it.

DR. JOHN J. CASSIDY (Wilmington): I advocated digitalization after cardiac collapse.

As to the typing, I think that the desire of the Board of Health to put typing stations at various places throughout the state is a very commendable one on the part of the Board, but if one is so far away from the typing station that he could not get to it, this new technique of Neufeld is so simple that any of us can do it. It is merely the admixing of a drop of the sputum and a drop of the serum, and watching the reaction of the capsules—the swelling and the staining of the capsules. It is a simple technique that any of us can use even if we do not have available the Board of Health typing stations. Of course, it is better to have experienced technicians doing it.

Concerning your question, Dr. Smoot, as
(Concluded on Page 220)

EDITORIAL

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THE 149TH ANNUAL SESSION

The annual session of the Medical Society of Delaware was held at Dover, October 11th and 12th, and was an unusually successful one. From the standpoint of attendance, 60 per cent of our members registered, a record that has been exceeded only a very few times. This was due to the excellent scientific program that had been prepared, a program that found 100 per cent of the essayists on hand, with contributions that made this session a particularly educational one. All of these papers were presented by out-of-state physicians, a return to an experiment that has been tried a few times before, each time with signal success. The discussions by the local physicians showed a grasp and up-to-dateness

that reflected great credit upon those who participated.

The House of Delegates transacted a considerable volume of business with neatness and dispatch, which will appear in detail in the December issue of THE JOURNAL. It elected the following officers: first vice-president, Dr. Bruce Barnes, Seaford; second vice-president, Dr. C. G. Harmonson, Smyrna; secretary, Dr. John H. Mullin, Wilmington; treasurer, Dr. A. L. Heck, Wilmington; councilor, Dr. Roger Murray, Wilmington. The next session was allocated to Wilmington in October, 1939. At the General Meeting, Dr. Meredith I. Samuel, of Wilmington, was elected president for 1939.

In addition to the foregoing, a public meeting was held in the evening, which was the unquestioned highlight of the session, and which was addressed by Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, who traced the socio-political trends of American medicine from 1930 to date. This was a factual recital, interspersed with just enough humor, and that it was most popularly received by the audience, which filled the hall, was evidenced by the enthusiastic applause at its conclusion.

The Woman's Auxiliary also held its annual meeting, under the presidency of Mrs. Ira Burns, of Wilmington, and considerable progress in their varied activities was reported.

The Kent County Society, as the host to the convention, did an excellent job, and the profession of Delaware can look back at the 1938 meeting with justifiable pride.

CORRECTION

In the issue of June, 1938, in the paper on "Creeping Eruption," the author, Dr. F. Earle Kunkel, was listed as an assistant professor of dermatology, University of Pennsylvania. The correct title should have been that of instructor. We regret the error.

THE A. M. A. SPEAKS

For the third time in the history of the A. M. A., a special meeting of the House of Delegates was held in Chicago, September 16 and 17, 1938, to formulate an official policy and to devise an official program for its constituency. The transactions of this epochal meeting were published in full in the *Journal of the A. M. A.* for September 24, 1938, which every member should carefully preserve, together with the issue of July 30, 1938, which contains the full program of the Federal Government, as outlined in the National Health Conference in July, which said conference occasioned this special meeting of our House of Delegates 164 of its 175 members being present.

At the conclusion of an extremely busy two-day session, the House unaimously adopted the following:

Recommendation I

"1. The establishment of a Federal Department of Health with a Secretary who shall be a doctor of medicine and a member of the President's cabinet.

"2. The general principles outlined by the Technical Committee for the expansion of Public Health and Maternal and Child Health Services are approved and the American Medical Association definitely seeks to cooperate in developing efficient and economical ways and means of putting into effect this recommendation.

"Any expenditure made for the expansion of public health and maternal and child health services should not include the treatment of disease except in so far as this cannot be successful accomplishment through the private practitioner.

Recommendation II

"We favor the expansion of general hospital facilities where need exists. The hospital situation would indicate that there is at present greater need for the use of existing hospital facilities than for additional hospitals.

"We heartily recommend the approval of the recommendation of the Technical Committee stressing the use of existing hospital facilities. The stability and efficiency of many existing church and voluntary organizations could be assured by payment to them of costs

of the necessary hospitalization of the medically indigent.

Recommendation III

"We advocate recognition of the principle that the complete medical care of the indigent is a responsibility of the community, the medical and allied professions, and that such care should be organized by local government units and supported by tax funds.

"Since the indigent now constitute a large group in the population, we recognize that the necessity for state aid for medical care may arise in poorer communities and the Federal Government may need to provide funds when the state is unable to meet these emergencies.

"Reports of the Bureau of Census, the U. S. Public Health Service, and of life insurance companies show that great progress has been made in the United States in the reduction of morbidity and mortality among all classes of people. This reflects the good quality of medical care now provided. We wish to see continued and improved, the methods and practices which have brought us to this present high plane.

"We wish to see established well coordinated programs in the various states in the nation, for improvement of food, housing, and the other environmental conditions which have the greatest influence on the health of our citizens. We wish also to see established a definite and far reaching public health program for the education and information of all the people in order that they may take advantage of the present medical service available in this country.

"In the face of the vanishing support of philanthropy, the medical profession as a whole will welcome the appropriation of funds to provide medical care for the medically needy, providing first, that the public welfare administrative procedures are simplified and coordinated; and second, that the provision of medical services is arranged by responsible local public officials in cooperation with the local medical profession and its allied groups.

"We feel that in each state a system should be developed to meet the recommendation of the National Health Conference in conformity with its suggestion that 'The Role of the Federal Government should be principally that

of giving financial and technical aid to the states in their development of sound programs through procedure largely of their own choice.'

Recommendation IV

"We approve the principle of hospital service insurance which is being widely adopted throughout the country. It is capable of great expansion along sound lines, and we particularly recommend it as a community project. Experience in the operation of hospital service insurance or group hospitalization plans has demonstrated that these plans should confine themselves to provision of hospital facilities and should not include any type of medical care.

"We recognize that health needs and means to supply such needs vary throughout the United States. Studies indicate that health needs are not identical in different localities but that they usually depend on local conditions and therefore are primarily local problems. We therefore encourage county or district medical societies, with the approval of the state medical society of which each is a component part, to develop appropriate means to meet their local requirements.

"In addition to insurance for hospitalization we believe it is practicable to develop cash indemnity insurance plans to cover, in whole or in part, the costs of emergency or prolonged illness provided they have the approval of county and state medical societies in localities in which they operate. Agencies set up to provide such insurance should comply with state statute and regulations to insure their soundness and financial responsibility.

"We are not willing to foster any system of compulsory health insurance. We are convinced that it is a complicated, bureaucratic system which has no place in a democratic state. It would undoubtedly set up a far reaching tax system with great increase in the cost of government. That it would lend itself to political control and manipulation there is no doubt.

"We recognize the soundness of the principles of workmen's compensation laws and recommend the expansion of such legislation

to provide for meeting the costs of illness sustained as a result of employment in industry.

"We repeat our conviction that voluntary indemnity insurance may assist many income groups to finance their sickness costs without subsidy. Further development of group hospitalization and establishment of insurance plans on the indemnity principle to cover the cost of illness will assist in solution of these problems.

Recommendation V

"In essence the recommendation deals with compensation of loss of wages during sickness. We unreservedly endorse this principle as it has distinct influence toward recovery and tends to reduce permanent disability. It is, however, in the interest of good medical care that the attending physician be relieved of the duty of certification of illness and of recovery, which function should be performed by a qualified medical employee of the disbursing agency."

The medically indigent were defined as follows:

"A person is medically indigent when he is unable in the place in which he resides, through his own resources, to provide himself and his dependents with proper medical, dental, nursing, hospital and pharmaceutical care and therapeutic appliances without depriving himself or his dependents of necessary food, clothing, shelter and similar necessities of life, as determined by the local authority charged with the duty of dispensing relief for the medically indigent."

To confer with Federal officials and the proper interested groups of the laity the Speaker appointed as members of the liaison committee: Dr. Irvin Abell, Louisville, president American Medical Association, chairman; Dr. Walter F. Donaldson, Pittsburgh; Dr. Frederic E. Sondern, New York City; Dr. Walter E. Vest, Huntington, West Virginia; Dr. Fred W. Rankin, Lexington, Kentucky; Dr. H. A. Luce, Detroit; and Dr. E. H. Cary, Dallas, Texas.

It is now the duty of every loyal member of the A. M. A. to become familiar with the above program, and to use his influence to assure its successful attainment.

THE TREATMENT OF PNEUMONIA

(Concluded from Page 216)

to the action of potassium permanganate in pneumonia, how was that administered?

DR. SMOOT: Rectally.

DR. CASSIDY: Unless they are going along the idea of supersaturating the blood stream with oxygen, that is the only rationale I can see. It may be that they are figuring on the absorption of the oxygen. I do not know of any other rationale.

I did not see that particular paper in looking that up. Do you mind telling me where you saw it?

DR. SMOOT: I do not believe I can tell you now.

MISCELLANEOUS

A. M. A.—N. B. C. Radio Program— "Your Health"

The radio program, "Your Health," to be broadcast by the American Medical Association and the National Broadcasting Company during the fall, winter and spring of 1938-39, will be broadcast over the Blue network each Wednesday at 2 p. m., Eastern standard time, beginning Wednesday, October 19th. Station WDEL is allied to the Red network, and while wishing to offer this program, will not be able to do so. Listeners in this territory should tune into Station WJZ direct.

This is not a program of health talks, but of 30-minute dramatizations written and produced by professional radio artists, with orchestra accompaniment. It is prepared on the basis of information furnished by the Bureau of Health Education of the American Medical Association. It is intended to supplement, dramatize, and enrich health instruction in the schools, but not to take the place of classroom instruction, textbooks or project teaching. It will correlate with any standard system of textbooks.

Dr. Parran to Speak Here

Dr. Thomas Parran, Jr., Surgeon-General of the U. S. Public Health Service, will speak at the New Century Club, 1014 Delaware avenue, Wilmington, on Wednesday, November 9th, at 3.15 p. m. His subject will be, "The Road Ahead in Public Health." Special invitation is hereby extended to the medical profession, to the Woman's Auxiliary, and to public health officials to attend.

Public Health Aspects of Industrial Hygiene

R. R. Sayers and J. J. Bloomfield, Washington, D. C. (*Journal A. M. A.*, August 20, 1938), believe that if the general health of a most important and numerous group (industrial workers) in the population is to be improved it will be necessary not only to control unhealthful conditions in the working environment but also to give consideration to such factors as proper living conditions, elimination of strain and hurry, nutrition and communicable diseases; in fact, to a general adult health program for workers. A broad industrial health program of this character to progress satisfactorily must be closely interwoven with existing public health activities. Health officials increasingly emphasize the industrial phase of public health, because any active program among industrial workers will improve the general health in the state. In order to carry on any kind of public health work in the factory it is necessary that the personnel know industry and industrial processes, and for this reason the persons expected to guide the work most successfully are those particularly trained in the field of industrial hygiene. A large portion of gainfully employed persons who work in small establishments have not as yet been provided a satisfactory industrial health service. The responsibility of the family physician in this phase of the problem must not be overlooked. There must be a closer cooperation between the industrial hygiene personnel in a state health department, the various local public health units and all medical practitioners, in an attempt to bring public health to gainfully employed persons and indirectly to their families. The situation as regards industrial health constitutes a challenge which the physicians ethically and morally, regardless of the particular field in medicine which he has elected to follow, cannot and should not seek to escape. He may assume leadership now with faith in his ability to serve effectively through the promotion of a cooperative and not a competitive broad health program.

International Assembly

The Inter-State Postgraduate Medical Association of North America extends a very cordial invitation to all physicians in good standing to attend the International Assembly of the Association to be held in the city of Philadelphia, Pennsylvania, October 31, November 1, 2, 3 and 4, 1938. All clinics and lectures will be held in the public auditorium. The registration fee is \$5.00.

An unusually interesting clinical and didactic program including all branches of medicine and surgery and the specialties has been arranged by the program committee.

In cooperation with the Philadelphia County Medical Society, and the Pennsylvania State Medical Association, and with the active support of the Philadelphia Chamber of Commerce, and Philadelphia Convention and Tourist Bureau, a most excellent opportunity for an intensive week of postgraduate medical instruction is offered by a very large group of acknowledged leaders in the profession.

Elliott P. Joslin, M. D., president; Edward W. Archibald, M. D., Charles H. Mayo, M. D., William J. Mayo, M. D., presidents of clinics; George W. Crile, M. D., chairman, program committee; William B. Peek, M. D., managing director.

International Physicians' Luncheon Club

The International Physicians' Luncheon Club of New York extends a most cordial invitation to physicians visiting New York to be honored guests at an excellent international luncheon, at the same time offering the services of the members of the club for any information they may desire.

While guests are not requested to make speeches, any useful information they wish to give informally will be greatly appreciated as fostering medical progress and international goodwill among physicians from all over the world.

Luncheon is served at the International Medical Center, 135 East 55th street, New York, every Tuesday punctually at 1 o'clock and is over about 2 o'clock. Physicians are

kindly requested to inform the club of their presence not later than 9 a. m. Tuesday by telephoning Wickersham 2-7900, or writing International Physicians' Luncheon Club, 135 East 55th street, New York.

Rabies: Report of Twelve Cases, With Discussion of Prophylaxis

Maurice L. Blatt, Samuel J. Hoffman and Maurice Schneider, Chicago (*Journal A. M. A.*, August 20, 1938), discuss the twelve cases of rabies admitted to the Cook County Hospital between 1929 and 1937. All proved fatal. The diagnosis in each case was confirmed by necropsy. The incubation period for the patients varied from two weeks to two months. The closer the site of the bite to the central nervous system the shorter was the incubation period. Wounds made by the bites of animals should immediately be cauterized with nitric acid. The Pasteur treatment or one of its modifications should be instituted in accordance with rules outlined and accepted. The twelve persons whose cases are reported died after suffering great agony and might have been saved if adequate prophylactic measures had been instituted immediately. They were admitted to the hospital after having been ill from two to seven days and anywhere from two weeks to two months after they had been bitten by dogs. Stringent enforcement of regulations governing ownership, licensure, muzzling and leashing of dogs would have prevented the bites. The extent of this problem is evidenced by the fact that in the state of Illinois alone 18,466 dog bites were reported to the state department of public health in 1936 and that there were ten deaths from rabies. A knowledge of similar facts would divulge a tremendous loss of time and of lives of human beings and animals of the United States from a preventable cause. When such knowledge becomes public it will be of inestimable educational value in the eradication of this dreadful malady.

BOOK REVIEW

Materia Medica: Drug Administration and Prescription Writing. By Oscar M. Bethea, M. D., Professor of Therapeutics, Tulane Graduate School of Medicine, 5th Edition. Pp. 577. Cloth. Price, \$5.00. Philadelphia: F. A. Davis Company, 1938.

The author, in this new edition, brings his subject matter up to date. It contains an abundance of information. The formulas given are to be found in the modern treatment of medicine and have proven their worth over a period of time. The chapter on prescription writing and drug administration is well worth studying. It is a work that the recent graduate needs as a reference. The author makes no claim that he is giving all the drugs found in the U. S. Pharmacopeia, but he does give the ones most used in the practice of the medical art. The book is well written and the style is good. The work is wholly satisfactory.

You Can Sleep Well. By Edmund Jacobson, M. D., Director of the Jacobson Laboratory for Chemical Physiology, Chicago. Pp. 269, with 40 illustrations. Cloth. Price, \$2.00. New York: McGraw-Hill Book Company, 1938.

The author has done considerable research work in the field about which he writes. In 1934, his other book for the layman, "You Must Relax," became a best seller. The present subject is clearly presented, in considerable detail, and is of interest and profit to the professional as well as to the lay reader.

Cancer: Diagnosis and Treatment. Compiled by the Committee on Cancer Education of the Colorado State Medical Society. Pp. 75. Paper. Denver: Colorado State Board of Health, 1938.

This is another of the small manuals that are to have a place on the desk of the busy physician, to use as a concise and authoritative guide in advising the patient as to diagnosis and treatment. It is complete enough to serve its purpose.

Cancer of the Breast and Cancer of the Uterus. By Marion E. Anderson, M. D. Pp. 63, illustrated. Paper. Clinton (Iowa): Marion E. Anderson, 1938.

The observations and readings of a single author are recorded here. No attempt at a formal text is made. The booklet is attractively printed.

October 10, 1938

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.

Required by the Act of Congress of August 24, 1912 of the Delaware State Medical Journal, Published Monthly at Wilmington, Delaware, for October 1st, 1938. STATE OF DELAWARE } COUNTY OF NEW CASTLE } SS.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared M. A. Tarumianz, M. D., who having been duly sworn according to law, deposes and says that he is the Business Manager and Associate Editor of the Delaware State Medical Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

- | | |
|--|---------------------|
| Name of— | Post Office Address |
| Publisher, Medical Society of Delaware, Wilmington, Delaware. | |
| Editor, W. Edwin Bird, M. D., Du Pont Bldg., Wilmington, Del. | |
| Associate Managing Editors, M. A. Tarumianz, M. D., Farnhurst, Del., and Dr. A. V. Gilliland, Welfare Home, Smyrna, Del. | |
| Business Manager, M. A. Tarumianz, M. D., Farnhurst, Del. | |

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given).

The Medical Society of Delaware.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state)—None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stocks, bonds or other securities than as so stated by him.

M. A. TARUMIANZ, M. D. Business Manager

Sworn to and subscribed before me this 10th day of October, 1938.

W. TRUXTON BOYCE, Notary Public (My commission expires Sept. 15, 1941)

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Official Organ of the Medical Society of Delaware
INCORPORATED 1789

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NOVEMBER, 1938

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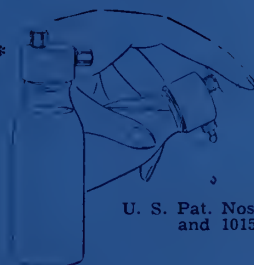
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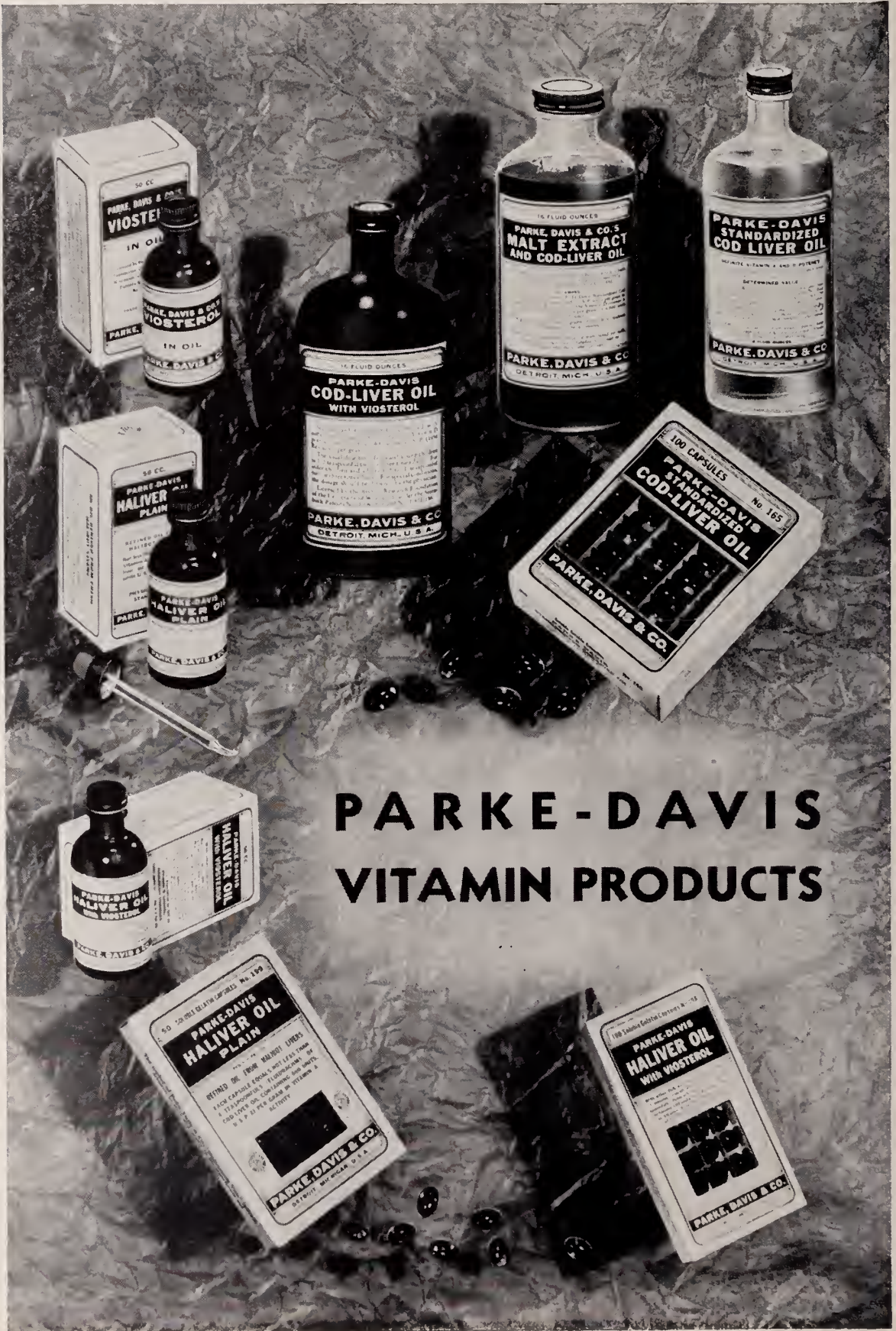


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III. Some Attainments in the Fields of Vitamin A Research

● During the twenty-five years since its discovery, vitamin A has been the subject of much intensive research, first by the biochemist and physiologist, and later by the clinician and organic chemist. It may be of interest to describe briefly several of the achievements made in these various fields of research on vitamin A.

It has been found that vitamin A is unique among the vitamins thus far discovered. It is apparently the only vitamin produced solely by animal metabolism from precursors—certain carotenoid pigments—which are themselves solely the products of plant metabolism. The structure of the vitamin has been established and checked by syntheses of closely allied forms and probably of the pure vitamin itself (1).

Physiological and clinical researches have provided explanations of the mode of absorption of the vitamin and the mechanisms of transport and storage in the body (2). The specific pathological effects of varying degrees of vitamin A deficiency in humans have been extensively studied. Many of the older ideas concerning specific effects of vitamin A on man have been confirmed; some of the older beliefs have been dispelled (2).

Recent years have also brought improvements in assay methods for vitamin A (3). Common American foods have been sur-

veyed and their vitamin A values tabulated (4). Last but not least, authoritative estimates are at hand as to the quantitative requirements of children and adults for vitamin A (5). Such, in brief, are only a few of the important additions which have been made to our knowledge of this essential dietary factor. Today, students of nutrition favor the practice of "protective nutrition" in which the individual is maintained upon a diet calculated to supply all known dietary essentials—vitamin A included—in optimal amounts insofar as these amounts may be known. In specific instances, such dietaries must be supplemented by vitamin-rich materials. However, the prime consideration is to provide a properly formulated basic diet. In this connection, commercially canned foods are worthy of mention.

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| 1. 1938. J. A. M. A. 110, 1748. | 3. 1938. Ibid. 111, 245. |
| 2. 1938. Ibid. 111, 144. | 4. 1937. U. S. D. A. Bur. of Home Econ., Misc. Pub. 275. |
| 1938. Ibid. 110, 2072. | 5. 1934-1935. Amer. Pub. Health Assn. Year Book 25, 69. |

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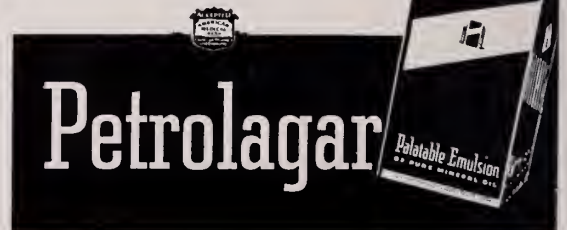
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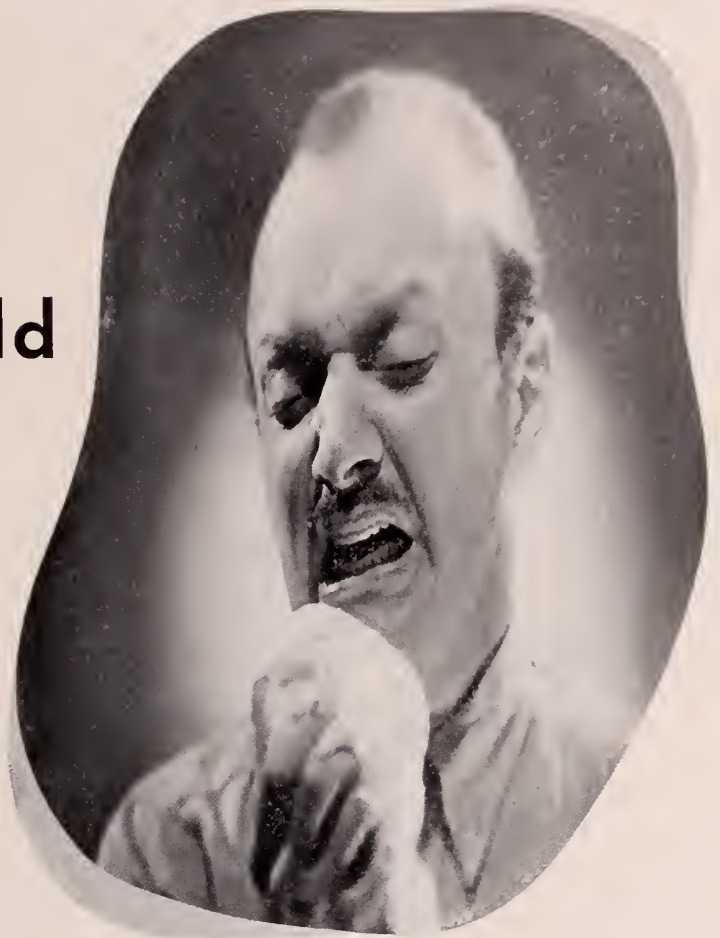
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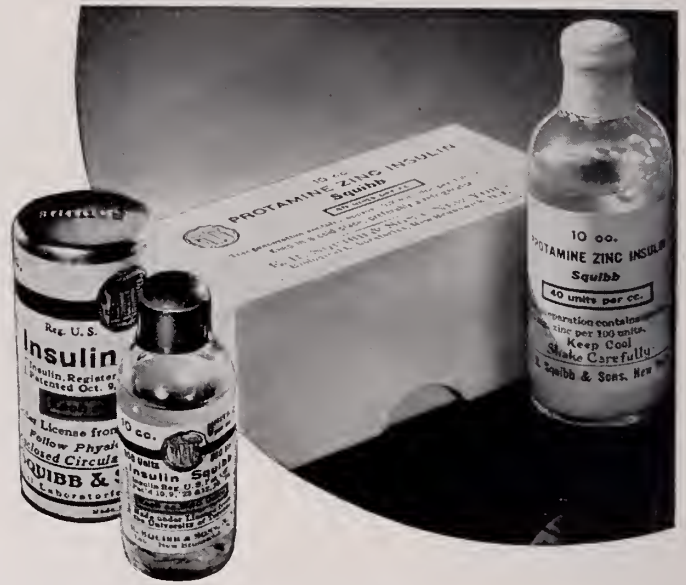
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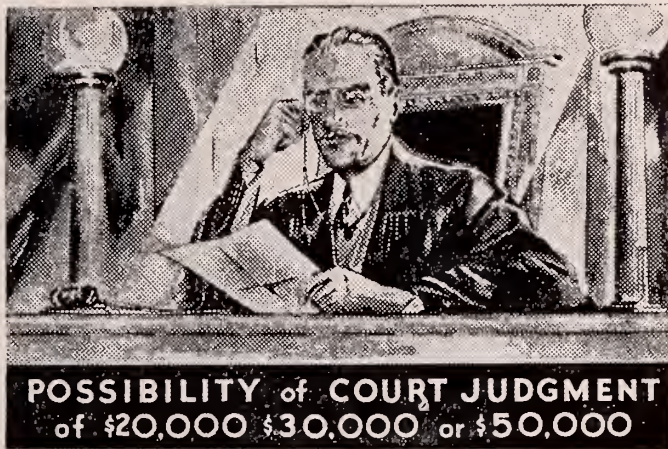
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EXOPHTHALMIC GOITER: ITS MEDICAL TREATMENT

End Results in 2600 Cases*

ISRAEL BRAM, M. D.,
Philadelphia, Pa.

Irrespective of the mode of treatment adopted, whether surgical, radiological or medical, the sufferer from exophthalmic goiter or Graves' disease must be followed up in person for at least three years ere an opinion can be drawn on the efficacy of the measures adopted. If the patient remains normal in every respect for three years after discharge from treatment, it is reasonable to infer that recovery is permanent and that the remedial measures employed were successful and are commendable.

DEFINITION OF MEDICAL TREATMENT

Unfortunately, in most quarters the medical treatment of Graves' disease is defined as iodization and rest. That this is inadequate and ineffective is attested by the innumerable chronic cases encountered and the justifiable complaints of surgeons who see these medical failures when they are almost too late for surgery. Qualified thyroidectomists rightly insist on *expert* surgery for desired results and justly condemn the average medical management of the patient as futile. Medical treatment too, must be administered *expertly*. Inexpert medical treatment has added confusion to the problem.

By proper medical treatment of exophthalmic goiter is meant the application of a broad regime of therapy embracing an individually

calculated rest program in association with dietetic, hygienic, medicinal, psychotherapeutic, and other measures, based on the view held by competent observers that Graves' syndrome is due to a widespread dysfunction of the endocrine glands and of the autonomic nervous system. *Treatment for exophthalmic goiter is not treatment for a lump on the neck.*

Exophthalmic goiter or Graves' disease is probably the most complex syndrome in medicine. In no other disease are the inherent foibles and frailties of body and mind brought so clearly to the limelight; in no other affection is the patient so quickly emaciated by the tremendous tissue oxidation. Yet recovery is usually complete and permanent if the qualified medical attendant, understanding and speaking the language of his patient, succeeds in creating an atmosphere of harmonizing cooperation between patient and environments.

THE REST PROGRAM

It is a mistake to keep the average patient in bed indefinitely, as this increases introspection and excitability. Rest may be procured by certain *activities* outside of bed, for any form of physical and mental pastime which diminishes the patient's overall alertness rests him. Relative hibernation is what the patient requires. The average patient may rest comfortably and feel more contented in an armchair a few hours a day. Also, she need not be deprived of the pleasure of sitting at the family dinner table, and even of a slow walk in the open, weather permitting.

In the patient with good *cardiae* reserve a 16-hour daily rest program is advised, thus arranged: To bed 9 p. m.; arise 11 a. m. with breakfast in bed at the usual hour; to bed 2 p. m.; arise 4 p. m. Depending upon the individual, at least 9 hours should be spent in

* From the Bram Institute and Clinic for Goiter and Other Glandular Diseases.

These remarks apply strictly to exophthalmic goiter or Graves' disease, otherwise known as the "diffuse toxic goiter" of comparatively recent onset, in which there is commonly observed a bruit over the thyroid and the patient usually presents exophthalmos. We are NOT discussing that form of thyroid toxemia commonly known as toxic adenoma in which there is an oldstanding nodular goiter that presents no bruit and in which the patient rarely presents exophthalmos.

sleep. The remaining hours in bed are devoted to relaxation. Insomnia should be carefully managed with a well selected remedy. Not alone must efforts be directed toward the elimination of physical causes of insomnia, but such factors as worry and fear must be overcome by psychotherapy.

This program is continued for a period varying from a few weeks to two or three months, depending upon the severity of the case and the approach to normal of the heart rate, basal metabolic rate, and weight. At this time the number of hours spent in bed is reduced until finally the patient may return to the normal seven to nine hours in bed nightly and to normal activities.

Advanced cases with marked cardiac enlargement and symptoms of impending or actual congestive heart failure demand absolute rest in bed in combination with other measures in accordance with the merits of the case. Following a satisfactory restoration of circulatory reserve, the rest program is guardedly relaxed.

If, in a case of average severity, a patient must continue household or wage-earning duties, the rest program may be omitted. In the event of auricular fibrillation or circulatory decompensation, however, a brief preliminary rest period to past the danger point must be insisted upon.

Aside from an early-to-bed program, patients with incipient Graves' disease need not materially discontinue their customary daily tasks while under treatment. This is especially true when the duties are congenial.

THE DIET

Unless the patient happens to be obese (an uncommon circumstance in Graves' disease) the patient must virtually eat his way to health. Tea, coffee, condiments and spices, as well as alcoholic substances must be strictly forbidden. Smoking, too, must be stopped. Flesh foods should not be given oftener than once a day and only in minimal portions. Bread and butter, cereals, the dairy products, and practically all varieties of fruit and vegetables constitute the major dietary ingredients and should be taken in maximal amounts.

The amount of food required by the average patient with Graves' disease is based

upon: (1) the amount of food ordinarily required by the patient during good health, (2) the amount necessary to combat the results of the hypermetabolism, (3) the amount required to regain lost weight, (4) the additional quantity necessary to effect a five to ten per cent increase over and above the patient's normal standard of weight, to be retained as a condition of permanency of recovery for approximately a year following discharge from treatment. Thus, for a while, the average patient requires practically twice the amount of food taken during health. As the goal is approached the food intake is tapered down, and when recovery is attained the patient is again on the normal food requirement.

An index of approaching recovery is the achievement of a substantial gain in weight. A gain of five pounds during the first two weeks is usually associated with a reduction of the heart rate by ten to twenty beats per minute; the basal metabolic rate and cardiac distress are reduced; the expression becomes less tense, and the entire demeanor is one of confidence. A patient responding promptly should gain on an average of ten pounds during the first month, after which an average of one and one-half or two pounds a week until, within eight to twelve weeks, the weight is restored to normal. Commonly the discharged patient weighs ten or fifteen pounds more than before the inception of the disease.

MANAGEMENT OF INFECTIOUS FOCI

In our experience focal infections in Graves' disease are usually coincidental rather than causal. Even if an infectious focus has apparently incited the syndrome, its removal has little influence upon the existing symptomatology. However, irrespective of etiologic unimportance, focal infections require correction.

When to remove infectious foci is a problem upon which may depend the prognosis and even the life of the patient. Precipitous action is hazardous. In a case of early Graves' disease in one who regards an operative procedure with little or no apprehension, a tonsillectomy, for example, may be performed at once with minimal reaction. If the syndrome is well advanced, however, it is best first to extinguish the conflagration, as it were, as

any added shock, whether it be emotional strain, tonsillectomy, or the extraction of a tooth, may so accentuate the symptoms as to convert a hopeful clinical picture into one of acute anxiety for all concerned.

MEDICAMENTS

In my recent book* I pointed out that drugs in the management of Graves' disease constitute merely a link in the chain of events within a broad regime of attention. Generally speaking, the drugs useful in the average case are seven in number: quinine, iodine, eserine (physostigmine), adrenal cortex, the barbiturates, ovarian substances and insulin. Only half these drugs usually suffice to fulfill the indications in a given patient, frequently but two or three. To discuss in detail the *pro* and *con* of each of these drugs would take us far afield of our purpose. The facts to be remembered are the following: approximately 9.5 per cent of cases of Graves' disease present a relative immunity to cinchonism; iodine is too often abused and in case of doubt it is best to omit this drug; eserine (physostigmine), in the absence of diarrhea, is a drug the usefulness of which is too often overlooked; adrenal cortical substance is thoroughly harmless and frequently of signal service in improving the vitality and nutrition of these patients; the barbiturates stand foremost as sedatives, but care must be exercised in the selection of the product and dosage; ovarian substances often assist materially in the correction of menstrual abnormalities and the arterial hypertension frequently encountered in Graves' disease; finally, insulin, cautiously employed, is a potent weapon in combating the carbohydrate intolerance and undernutrition which so commonly determine the course and prognosis of the case in hand.**

Drugs, as other remedial measures, are supportive devices to be employed until such time as the patient is self-supportive. As recovery is reached and the basal metabolic rate, heart rate and weight reach normal, remedial measures, especially drugs, are grad-

ually withdrawn. Ordinarily we find that treatment may be discontinued within three or four months after the first normal basal metabolic rate and heart rate are observed. Usually there need be no resumption of medical attention after treatment has been discontinued.

PSYCHOTHERAPY

Despite controversy among surgeons, roentgenologists and internists regarding the superiority of their respective therapeutic approach in the management of Graves' disease, there exists nevertheless the common denominator of general accord on the need of *medical* attention in *all* cases before, during and after the appearance of the peak of the disease. There is general admission that exophthalmic goiter is not simply a lump on the neck, and that unless the patient as a whole is managed therapeutically, *no* form of treatment succeeds in its purpose. This applies especially to psychotherapy. The study of the cause and cure of Graves' disease is concerned with the entire neuroendocrine system—it is concerned with humanity itself. During the course of treatment these patients must be trained to face the struggle for existence with the confidence and imperturbability so essential to self-preservation.

The details of psychotherapy could easily fill a large monograph. In this paper we can only state that the factors involved in attempts at adjustment of the individual to his environments require the correction of discernible internal and external conflicts. An increase in the threshold of emotional reaction—the substitution of reason for emotionalism—this is the aim of effective psychotherapy.

COURSE UNDER TREATMENT

The course of clinical events in the average case of Graves' disease while under appropriate medical attention is as follows: The *tachycardia* is the first symptom to benefit, the heart action and rate becoming normal within a few weeks to a few months. Parallel with heart improvement, the *weight* progresses toward the normal figure. The *thyroid hyperplasia* gives way to colloid infiltration, the mass becoming a simple colloid goiter, and may so remain until after normality in all other directions is established. At this

*Bram, I.: Exophthalmic Goiter and Its Medical Treatment. St. Louis, 1936. C. V. Mosby Co.

**Such complications as gastrointestinal disturbances, the cardiac arrhythmias, congestive heart failure and intercurrent conditions as diabetes mellitus, tuberculosis and psychoses require special consideration which cannot be included here.

time there begins a gradual lessening of colloid content with reduction in the size of the thyroid. In due time the thyroid swelling disappears, the neck soon presenting the normal hollow above the suprasternal notch. The tremor usually disappears concurrently with normality of heart and metabolic rate. The



Fig. 1. Case of typical exophthalmic goiter in a man of 31. Duration 3 years.

Fig. 2. The same patient a year later, having undergone a 6 months' regime of medical attention. This person has now been well for 18 years.

exophthalmos is commonly the last to go, although there are exceptions to this rule. In those whose exophthalmos was excessive, the eyes may still bulge for a few months or a



Fig. 3. A woman of 29 with severe exophthalmic goiter of 8 years' duration.

Fig. 4. The same person after a 12 months' regime of medical attention. This woman has now been well for 16 years.

year or longer after the individual has reached normality in all other respects. But sooner or later in nearly all cases the eyes become normal, and the appearance of frozen fright

becomes a past event. We have had no instances of sequential malignant exophthalmos.

THE FOLLOW-UP METHOD

We were able to follow up 2,600 cases of exophthalmic goiter for periods of 3 to 20 years. Approximately 76 per cent were females. The youngest patient was 2½ years old, the oldest 78, both females. The average age incidence in this series was 27 years.*

The method pursued in our follow-up of patients was as follows: During the period of therapeutics the patient was observed at inter-



Fig. 5. A woman of 45 with rather severe Graves' disease of 4 years' duration, and complicating angina pectoris.

Fig. 6. The same person after 8 months of medical attention. She has now been well for 17 years.

vals of from twice a week to once in 2 or 3 months, depending upon the proximity of residence to our clinic.

TABLE I

Follow-up Period of 2600 Graves' Disease Patients Treated by Medical Means

Follow-up Period	No. of Patients
At least 3 years	387 or 14.9%
" " 4 years	433 " 16.7%
" " 5 years	558 " 21.5%
" " 6 years	222 " 8.5%
" " 7 years	165 " 6.3%
" " 8 years	217 " 8.3%
" " 9 years	186 " 7.2%
" " 10 years	128 " 4.8%
" " 11 years	71 " 2.7%
" " 12 years	59 " 2.3%
" " 13 years	51 " 2.0%
" " 14 years	39 " 1.5%
" " 15 years	30 " 1.2%
" " 16 years	17 " 0.7%
" " 17 years	13 " 0.5%
" " 18 years	11 " 0.4%
" " 19 years	8 " 0.3%
" " 20 years	5 " 0.2%
	2600 " 100.0%

Remark: The average duration of follow-up per patient was approximately 6.5 years.

*This series is part of a gross total of over 5,000 subjects of Graves' disease personally observed since January, 1910.

The occasional patient treated institutionally (approximately 8 per cent) was kept under close observation for an average of five weeks, then discharged for home attention.

When recovery was reached, the follow-up period began. Depending upon the distance of the patient's residence from the clinic, he or she was requested to appear for examination at intervals of from once in three months to once in twelve months, the average being twice a year. During these visits the patient was observed subjectively and objectively in detail, with the weight, heart action, basal metabolic rate*, thyroid, eyes, and sense of well-being and endurance as the indices of recovery. The weight should vary between the standard normal and approximately ten pounds over; the heart action should be normal in rate, force, and rhythm and should not be abnormally excitable under moderate physical and mental excitation; the basal metabolic rate should vary between plus 10 and minus 10 or 15 per cent. A recovered patient commonly presents a minus reading. The eyes and the size of the thyroid should be normal. The sense of well-being should correspond to that of normal health.

DURATION OF TREATMENT

Patients in this series were discharged from active treatment within two to eighteen months of observation, the average being approximately 8.4 months. The individual duration depended upon the age of the patient, the duration and severity of the syndrome, the presence or absence of complications, and the degree of cooperation manifested by the patient and household.

Early cases required only several weeks of treatment. In this category are included those whose basal metabolic rate did not exceed plus 20 per cent, whose heart rate did not exceed 100 per minute, and whose loss in weight did not exceed 20 pounds.

*In patients seen prior to 1918, when the metabolic instrument was not available, the indices of recovery were normality of pulse, weight, and other factors aforementioned. Those still under observation in 1918 and subsequently were subjected to metabolic determinations.

TABLE II
DURATION OF TREATMENT

Discharged from treatment		No. of Patients	
Within 2 months	.....	84 or	3.2%
Within 4 months	.....	152 "	5.8%
Within 6 months	.....	623 "	24.0%
Within 8 months	.....	902 "	34.7%
Within 10 months	.....	347 "	13.3%
Within 12 months	.....	254 "	9.8%
Within 14 months	.....	116 "	4.5%
Within 16 months	.....	94 "	3.6%
Within 18 months	.....	28 "	1.1%
		2600	100.0%

Sufferers from severe Graves' disease commonly presented myocardial damage with auricular fibrillation. Some had advanced to circulatory decompensation with anasarea. Not infrequently the basal metabolic rate exceeded plus 90 per cent. As far as could be determined, the duration of the symptoms in these patients varied from one to fifteen years, the average being approximately three years. Though patients with severe exophthalmic goiter may die during the fourth or fifth year of the disease, yet among our records are several instances in which the duration of the disease was twenty years or longer, the chronicity of the syndrome having been increased because of surgical or x-ray treatment received years before.

In approximately 20 per cent of this series, surgical treatment had been resorted to months or years prior to the institution of medical attention, some patients having experienced temporary benefit with ultimate relapse, others not having tangibly benefited. A number presented a combination of Graves' disease and myxedema.

TABLE III
Time Lost From Customary Duties During Treatment of Graves' Disease

Number of patients performing usual duties while under medical treatment	.....	450 or	17.3%
Number of Patients Abstaining from customary duties for			
1 month	.....	273 "	10.5%
2 months	.....	356 "	13.7%
3 months	.....	539 "	20.7%
4 months	.....	254 "	9.8%
5 months	.....	158 "	6.1%
6 months	.....	147 "	5.7%
7 months	.....	111 "	4.2%
8 months	.....	122 "	4.7%
9 months	.....	57 "	2.2%
10 months	.....	50 "	1.9%
11 months	.....	45 "	1.7%
12 months	.....	38 "	1.5%
		2600	100.0%

THE QUESTION OF WORK WHILE UNDER TREATMENT

Four hundred and fifty or 17.3 per cent in this series continued their customary duties while under treatment. It will be noted from Tables II and III that most patients were well enough to return to social and economic duties considerably before discharge from active medical attention. In some of our cases, though the stage of the disease was advanced, cessation from activities was economically impossible. Household or wage-earning functions were continued, the only cooperation having been in the matter of diet, retiring early, and the taking of prescribed medications.

TABLE IV
End-Results in 2,600 Cases of Graves' Disease Treated Medically and Followed Up for Three to 20 Years

Normal health	2,343	or	90.0%
Slight exophthalmos (otherwise well)	102	"	4.0%
Heart enlargement (chiefly objective)	78	"	3.0%
Slight objective hypothyroid symptoms	35	"	1.4%
Slight exophthalmos and heart enlargement	26	"	1.0%
Slight exophthalmos, heart enlargement and objective hypothyroid symptoms	16	"	0.6%
	2,600	"	100.0%

COMMENTS ON RESIDUA

The 90 per cent of patients in Table IV recorded as well have been enjoying life in fullest measure.

The 4 per cent presenting some exophthalmos are instances in which bulging of the eyes was extreme at the outset, some approaching the so-called "malignant exophthalmos," during the active stages of the syndrome. Most of the patients presenting residua had been thyroidectomized or had undergone extensive radiation prior to coming under our care. Marked exophthalmos may be a very stubborn sign, occasionally yielding only after a year or two of normal health.

A degree of cardiac enlargement may remain in those whose hearts were enlarged from excessive severity and chronicity of the disease. On discharge from treatment these were frankly told of the need of more rest in bed each night and cautioned against excessive physical and mental strain. However, some have been largely disregarding these exhortations on the ground that they are feel-

ing well and see no occasion for restrictions and live a normal social and economic existence.

Patients with a combination of postoperative hypothyroidism and Graves' disease frequently presented a difficult task for therapy. In some the symptoms of myxedema (excessive weight, extreme fatigue, dry skin, persistent drowsiness) were features eliminated with difficulty, since thyroid opotherapy tended to flare up the residual evidences of Graves' disease, particularly tachycardia, nervousness and tremor. The occasional patient presenting mild *spontaneous* subhypothyroidism has been enjoying good subjective health nevertheless, except that the weight was beyond normal. The uncommon instance in this series of the combination of persistent slight exophthalmos, cardiac enlargement, and subhypothyroidism needs no special comment, except to state that the symptoms were chiefly objective and did not tangibly diminish the patient's happiness and usefulness.

COOPERATION

In no other disease are individualization and strict military discipline in treatment more vital than in Graves' disease. Cooperation is chiefly dependent upon the honesty, sincerity and intelligence of the patient, yet the physician plays no mean part in eliciting the required teamwork. Almost anyone can obtain cooperation from the patient who is in the habit of taking and executing orders. But in the hands of the well equipped physician even the fractious patient can be brought to the realization that obedience is the best policy.

SUMMARY AND CONCLUSIONS

1. Of this series of 2,600 cases of Graves' disease treated medically and followed up for 3 to 20 years, the results obtained were as follows: 90 per cent are well; the remainder presented varying degrees of objective residua of little or no subjective importance; most of the 10 per cent in this group were enjoying complete social and economic usefulness.

2. The follow-up program adopted was not by questionnaire, but by personal contact with the patient. The patient was considered

well when for at least 3 years (a) the heart was normal without undue excitability upon moderate exertion; (b) the weight was normal or above; (c) the basal metabolic rate remained at between plus 10 and minus 15 per cent; (d) the tremor, thyroid swelling, and emotionalism had disappeared; and (e) the individual had been enjoying the maximum capacity for social and economic usefulness.

3. Relapses and recurrences of Graves' disease are unlikely after formal discharge following a regimen of properly applied medical attention and the proper follow-up program.

1633 Spruce Street.

TRICHINIASIS

A Report of Five Cases

EDGAR R. MILLER, M. D.,
Wilmington, Del.

Arthur Schopenhauer once said "It is less important to see something new than to think something new of that which everyone sees." Agranulocytosis was long diagnosed as streptococcal ulcerative sore throat, and undulant fever as typhoid, or malaria, before their true nature was learned. Likewise some of these so-called "new diseases" are probably new only because they have been separated from some other clinical entity. Trichiniasis is not a new disease, but no doubt its diagnosis has frequently been missed.

It is said that ten to twenty per cent of our population have acquired trichinae.¹ These conclusions have been drawn from special investigations by consecutive autopsies. Three methods have been used; first, microscopic; second, special compression of striated muscle; and third, digestion. The last method is at present the most accurate. This consists of digesting diaphragmatic muscle by a special process with pepsin and dilute hydrochloric acid. The residue is then examined for the encysted larvae. The following summary will demonstrate results of this modern technique as well as the incidence of trichiniasis found by different investigators.²

Year	Investigator	Method	Number of Necroscopies Examined	Per cent Trichinae Found
1897	Buffington and Thornburg	Microscopic	21	14.3
1901	Buffington-Williams	Pressed Muscle	505	5.3
1931	Rochester, N. Y.	Digestion	344	17.5
1934	Minneapolis, Minn., Riley and Schufley	Pressed Muscle	117	17.1
1936	New Orleans, La. Hammon	Digestion	200	3.5
1936	San Francisco, Cal., McNaught & Anderson	Digestion	200	24.0
1931	Boston, Mass. Queen	Digestion	58	27.6
1936	Washington & Baltimore, Hall & Collins	Digestion and Compression	300	13.7

AVERAGE OF RESULTS

Cases Studied 1745 Total. 15.0% of Population Affected.

Accepting the lowest statistical report, namely: that 10 per cent of the population is affected, the state of Delaware with a population of 240,000 people (census of 1930) should have 24,000 inhabitants infected with trichiniasis. This is not surprising if one realizes that most cases are asymptomatic. However, it is noteworthy that up to the present cases which I am about to report, the United States Public Health Department does not have record of any cases occurring in Delaware. One other case occurring in a child several years ago was reported indirectly.

The following are abstracts of five cases seen in private practice:

CASE I

J. M., white, male, aviator. Aged 32. Seen at home. C. C.: headache, swelling of the face, fever, and general muscular pains. The patient was taken ill four days previously with what he thought was grippe. He continued to work two days after the onset of his illness. His headache became quite severe. Malaise weakness and swelling of the face, hands, and feet caused him to remain in bed. Appetite was poor. Bowels were regular. The severe muscular aching enveloped his entire body. There was no cough or asthma. There were no urinary or nervous disturbances. Physical examination showed a well developed and nourished man in no apparent distress. Temperature 101° F. Pulse, 90. Respiration, 24. Face, hands, and feet definitely swollen but no pitting edema. Pharynx was injected. Lungs, heart and abdomen were not remark-

able. Blood pressure and eye grounds normal. Tentative diagnosis: la-grippe with acute nephritis. Urinalysis revealed no albumin and specific gravity was within normal limits. The following day a blood count showed a mild leucocytosis with 21 per cent eosinophils. A more detailed history revealed the following: three weeks ago the patient had taken his aeroplane to a city in Ohio for repair. While there he remembered eating rare pork in a nearby restaurant. He recalled no immediate gastric upset. A definite diagnosis was changed to trichiniasis. Recovery was uneventful. A muscle biopsy was not done until two years later, when the encysted larvae were demonstrated in an excised piece of deltoid. Conclusion: a case of trichiniasis simulating la-grippe and acute nephritis, but diagnosis made by urinalysis and blood count.

CASE II

R. M., white, male, butcher, aged 35. C. C.: high fever, headache, nausea, vomiting. Chills and generalized aching of two days' duration. The patient was perfectly well until the present episode. This illness came on rather acutely with severe muscle pains. Physical examination showed man about 50 pounds overweight. Temperature, 104.2° F. Pulse, 104. Respiration, 28. Lips livid. Face, particularly about the eyes, definite puffiness and swelling. No nasal discharge. Pharynx red. No cervical adenopathy. Heart and blood pressure normal. A few sonorous rales suggesting asthmatic squeaks were heard at both bases. Liver and spleen were not palpable. No ankle or hand edema. Reflexes normal. No cervical rigidity. Urinalysis negative. Blood count report showed 26 per cent eosinophils. No muscle biopsy done. Because of the occupation, marked muscular aching and edema distribution, trichiniasis was suspected. Direct questioning revealed that while grinding and seasoning sausage, the patient acquired the habit of tasting it. He had done this the past couple years with no bad effects. Recovery uneventful, although the patient was very uncomfortable for two weeks. Malaise and tiredness persisted several months. Conclusion: a case of trichiniasis which had many aspects of influenza and nephritis.

CASE III

F. S., white, female, stenographer and housewife. Aged 30. Residence, Washington, D. C. C. C.: asthma, high fever, delirium at periods, severe aching and weakness. Onset one week ago, chills, fever and sweats, nausea, vomiting, wheezing and dyspnea. A physician was called to her apartment in Washington, and diagnosis of asthma was made. Injections were given in the arm. There was no improvement. The mother of the patient brought her to Wilmington. The patient became critically ill, with periods of delirium. Physical examination showed patient propped up in bed with two pillows. Ashy complexion. Temperature, 105° F. Pulse, 130. Respiration, 30. Face, hands, and feet puffy. No pitting edema. Injected sclera. Nose and ears negative. Pharynx red and injected. No cervical, axillary or inguinal adenopathy. Lungs: no impairment. Tactile fremitus normal. Definite wheezing over both lungs. Breath sounds slightly distant. No moist rales or tubular breathing. Heart: no displacement, no murmurs. B. P. 100/60. Pulse regular but not forceful. Abdomen soft. Liver and spleen not palpable. Reflexes normal. No definite diagnosis could be made until some laboratory tests were done. Pyelonephritis, typhoid fever and asthma, complicated by bronchopneumonia were considered. Urinalysis, Widal and blood culture were negative. Blood analysis report was 21,000 W. B. C. and 24 per cent eosinophils. Further history revealed the following: the husband was very fond of pork chops, cooked rare. They had them at least once and sometimes twice a week. The husband remained perfectly well and his blood count showed no eosinophilia. The patient remembered eating rare chops about three weeks previously. The chops were purchased in a Washington meat market. To her knowledge there was no gastro-intestinal upset until the onset of the present illness. The patient was removed to the hospital. A deltoid muscle biopsy demonstrated the trichinella wriggling in a fresh specimen. She ran a stormy course for three weeks. Her temperature remained between 103° and 105°. She was semi-conscious and delirious. Extreme exhaustion and weakness predominated.

Treatment consisted of intramuscular injections of thymol in glycerin, neoarsphenamine intravenously, blood transfusion, and symptomatic treatment. After five weeks the patient was discharged from the hospital, but remained very weak for three months. Conclusion: a case of trichiniasis which, until laboratory help was had, was considered one of pyelonephritis, typhoid fever and asthma with bronchopneumonia.

CASE IV

A. C., white, male, groceryman. Aged 47. C. C.: a burning, itching redness of his eyes and puffiness of the lids. He also felt aching and feverish. The onset was of two days' duration, and symptoms were becoming worse. Physical examination showed breathing was sonorous. Throat was infected. Heart, lungs and abdomen not remarkable. Hands and feet were not puffy. Temperature, 99.6° F. Urinalysis, negative. A tentative diagnosis of "cold in the head" was made and patient was sent home to bed. A blood count showed 18 per cent eosinophils. The following day the face and eye swelling was more marked presenting a typical picture of "frog face" or "big head," as has been applied in describing trichiniasis. Further history brought out the fact that often while selling pork to his customers, he would eat a small piece. Incidentally, this groceryman purchased some of his pork from the butcher in Case II. The patient's condition became rapidly worse. Temperature rose to 103° F. and 104° F. Marked aching and weakness were the predominant symptoms. After three weeks the patient was recovering uneventfully when thrombophlebitis of the right leg developed. His total bed rest was nine weeks and improvement good with the exception of post-thrombophlebitis. Muscle biopsy showed encysted larvae. Treatment consisted of intramuscular injections of thymol in glycerin, symptomatic and usual treatment of rest and heat for the thrombophlebitis. Conclusion: trichiniasis, first presenting appearance of acute conjunctivitis, and complicated by thrombophlebitis.

CASE V

X. Y., white, female, housewife. Aged 40. Residence, Rising Sun, Md. C. C.: fatigue,

nervousness, palpitation, hot flashes and insomnia. Six months previously the patient was studied at the University hospital, Baltimore, where a diagnosis of trichiniasis was made. A history of ingestion of raw pork and an eosinophilia of 18 per cent were the chief evidence. No muscle biopsy was done. After several weeks in the hospital the patient returned to her home. Insomnia, nervousness, palpitation and fatigue so bothered her that she was referred for further study. Eosinophilia of 10 to 14 per cent persisted. Muscle biopsy was negative. Baehman agglutinations and skin tests were negative. Repeated examinations were negative. Other exhaustive studies of the urine, blood and x-ray were negative. The patient responded favorably to sedatives, oestrin and psychotherapy. Conclusion: probably trichiniasis, complicated by psychoneurosis and menopause.

COMMENT

In analyzing the above case reports, first it should be emphasized that the incidence of trichiniasis is probably greater in Delaware than has been recognized; second, that other diseases may be easily confused with trichiniasis in diagnosis; and third, the diagnosis can be readily made and verified by simple laboratory methods. A person may have a slight or heavy infection. The physician sees only the severe cases. Very light cases may cause slight or moderate or no symptoms. Many of the patients on whom post mortem showed trichinae in the diaphragm muscle probably never consulted a physician about this disease. Other cases complain of muscular rheumatism and others think they have a slight attack of grippe. One could speak therefore acinical, subclinical and clinical trichiniasis.

In a thick pork chop maybe only a thin portion is not heated to the required temperature³ of 118.4° F. to 122° F. to kill the larvae. In this case a small dose of larvae may be ingested. Again, a hog may be lightly or heavily infected, depending on the dose he gets from ingesting infected pork scraps, rats or their dejecta, etc.

In several German slaughter houses⁴ rats were caught and examined. From 5.3 per cent to 22.1 per cent of the rats were infected with

trichinae. Billings, of Boston, found all the rats in one slaughter house were infected. As to the incidence of trichiniasis in hogs, one investigator in Montreal reported that only one hog in 12,000 had trichiniasis, while others have reported as high as 1 in 20. Although meat is carefully examined by government inspection, it is neither economically nor practically possible to examine for trichinae cysts.

Brenner⁵, pathologist at the Vienna General Hospital, where three thousand autopsies are done yearly, reports seeing only one case of trichiniasis in a year. This is explained by strict government control of piggeries, particularly with reference to protection against rats. Incidentally, another interesting fact is that one reason diplomatic relations between Austria and Serbia were strained was due to the fact that Austria refused to buy Serbian pork, it being heavily infected with trichinae.

Hall⁶ has reported that garbage-fed swine have trichinae three to five times as frequently as grain-fed swine. He recommends that pig pens should be made rat proof.

In the cases we are reporting, it would be noted one originated in Ohio, one in Washington, D. C., one in Maryland, and two in Delaware, probably from imported or out-of-state pork.

DIFFERENTIAL DIAGNOSIS

The other diseases most frequently confused with trichiniasis are la grippe, or influenza, arthritis, asthma, nephritis, conjunctivitis, typhoid fever, pyelitis, and chronic muscular rheumatism. If no laboratory tests are done, as a result of keeping trichiniasis in mind, the real diagnosis may never be ascertained, for all the above may be self-limiting diseases, as is trichiniasis.

Again, a diagnosis is made by a history of ingestion of pork, eosinophilia, muscle biopsy, and the Bachman skin and agglutination test. The eosinophilia in our cases varied from 10 to 26 per cent. Eosinophilia⁷ persists long after the disease has ended. Muscle biopsies of the deltoid were made in four cases and were positive in Cases I, III, and IV, and negative in Case V. Biopsy was refused in Case II.

The Bachman⁸ agglutination and intradermal tests are only supplementary. Both tests

were negative in Case V, as well as the biopsy test. On the other hand, in Case IV both agglutination tests were negative while the biopsy test was positive.

If in the stage of ingestion one were fortunate enough to know the meat was infected, gastric lavage and purging could be done. The acute symptoms occur in the second and third week during the stage of invasion. The ingested cysts resist the gastric secretions like a keratin capsule. In the small intestine the cystic wall is digested, freeing the trichinella. Here the larvae are formed which pass through the mucous membrane by way of the portal circulation or the lacteals to the thoracic duct, reaching the right heart, then through the lesser circulation, then to the greater, and finally reaching striated muscle, and there the stage of encystment occurs. Each larva is imprisoned in a small calcium capsule. It has been shown at the Mayo Clinic⁹ that the diaphragm muscles are invaded by the greatest number of larvae. This was explained by the fact that these muscles have a greater activity. However, on animals complete unilateral sympathectomy was done and trichiniasis was artificially produced. There was found no change in the larvae distribution.

The treatment of our cases was largely symptomatic. Purgation is justifiable even in the invasive stage; it may cleanse the bowels of any remaining trichinella or cysts. Booth¹⁰ reported good results with thymol in sterile olive oil. This was used in Cases II, III, and IV. Nearsphenamine has been used. This was used alternately with thymol in Cases III and IV. Calcium gluconate was given by mouth in Cases II, III and V. Serum treatment was tried twenty years ago, with no beneficial results. There is no specific treatment.

CONCLUSION

(1) Trichiniasis is probably more prevalent in Delaware than appreciated. (2) Cases are frequently not diagnosed. (3) It should be considered more frequently as a diagnosis in any unexplained puffiness and swelling of the face, in acute or chronic muscular pains, in unexplained fever or aching. (4) A blood count showing an eosinophilia over 10 per cent should suggest trichiniasis. (5) The

laity should be informed that all pork must be thoroughly cooked before eating. (6) Piggeries should be rat proofed as far as possible, and pigs should be grain-fed rather than garbage-fed.

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Medical Arts Building.

TO THE NURSES*

DANIEL J. LAYTON, LL. D.,**
Georgetown, Del.

We are met to congratulate the members of the graduating class of nurses of the Beebe Hospital, and to welcome them their entrance into the activities of a complex world.

The public is more and more interested in scientific nursing as the need of it becomes more apparent, and it may not be amiss to say something with respect to the history of this profession.

The evolution of nursing is chiefly due to three diverse influences—religion, war, and science. In the earlier centuries of Christianity, it was the religious influence that induced women to undertake the care of the sick, as a charitable duty. The growth of certain religious houses in ancient times and their existence today, in part at least, is due to this influence. War is the very antithesis of the teachings of Christ, and consequently of the Christian religion, but it is readily seen how war with its horrors has, by necessary practicality, promoted nursing. So we find that the training of nurses received great impetus from the Crimean War in 1854, and from our own Civil War a few years later. It was in

the former that Florence Nightingale, of blessed memory, grasped the principles of hygiene, then imperfectly understood, and applied them to the reform of hospital administration; and so effective was her work, in spite of lack of means and experienced nurses, and despite the rebuffs from military authorities to whom every new thing was necessarily wrong, that, while in February of 1855, the death rate in the military hospitals was 42 per cent, in June of the same year it had been reduced to 2 per cent.

A few years later our Civil War occurred. We were totally unprepared; unprepared to fight, and unprepared to take care of the inevitable results of fighting. Hospitals were few. Supplies of all kinds were lacking. There was a want of trained physicians and surgeons, and almost no experienced nurses. Our Hospital Corps was designed to take care of 11,000 men. Suddenly it was called upon to provide for scores of thousands. Nurses were soldiers detailed from the ranks of convalescent soldiers. They were awkward, ignorant and inexperienced, and the results were thoroughly unsatisfactory. But the women of the country, as they always do in crises, formed their organizations, and offered themselves; and bravely and efficiently they did the disagreeable, oftentimes horrible, work as military nurses.

Some days ago I read the short history of the First Delaware Regiment written by its chaplain, Mr. Murphy. That regiment was one of the finest in the Army of the Potomac. It was actively present in nearly every important battle fought by that army. Its losses were fearful. I was struck by the repeated references to the women who volunteered their services to care for the sick and wounded. He told how the faces of the sufferers would light up at their coming, how tireless and tender were their ministrations, how the soldiers would bless them, and in the same breath curse the government for lack of foresight and provision, and with what sympathy those noble women would care for those whose days were numbered, write their letters and take their last messages.

The advance in medical knowledge with respect to bacteriology, antisepsis and asepsis

* Commencement address of the Beebe Hospital, Lewes, May 27, 1938.

** Chief Justice, Supreme Court of Delaware.

since 1880, revolutionized the science of nursing both in the hospital and in the home, and gradually it came to be appreciated that nursing was an occupation or calling, so intimately connected with the life and health of the public, that it was, as the lawyers say, impressed with a public interest, and therefore, subject to regulation by the state precisely as other professions affecting the public safety are regulated. So our state, as other states, requires courses of training and standards of knowledge and proficiency for the nurse, recognizing the calling as one closely connected with the public welfare.

It seems hard to believe that a half century ago, within my lifetime, the hospital nurse speaking generally of course, was ignorant of drugs, ignorant of methods, ignorant of the very fundamentals of surgical cleanliness, was careless and indifferent, and if we may believe famous physicians and surgeons of that day, frequently drunk. The evolution from that type to the present spotlessly clean, intelligent, educated, proficient nurse, has been rapid, steady and complete. The nurse of today has ideals and purpose. She has been carefully taught. She works rapidly and certainly, without hurry or noise. She knows what is wanted and has it ready. She has her directions and obeys them with intelligence. She works with her hands, her brain, and above all with her heart. She watches her patient through long hours, with the calm confidence and self-reliance that comes from thorough training and experience. Her knowledge enables her to detect changes for the better or the worse. Her sympathy and tenderness helps to assuage the burden of grief and anguish. No matter how hard or disagreeable the work, she is always dainty and charming. She is the right hand of the physician and surgeon, an absolutely necessary adjunct to a hospital. A hospital cannot run without her. She earns her money, every penny of it, and I bow with respectful admiration to those who have chosen to devote their lives to this most necessary and useful calling.

Young ladies of the graduating class of the Beebe hospital, you have thrown off the blue and have put on the white gown. This means

that you have passed successfully through the three years of arduous toil and service, with long hours, and hard work and study; and that you have proved yourselves fit to take your places in the busy world as graduate nurses. You are to be congratulated, and I sincerely congratulate you first, because in colloquial phrase, you have proved that you can take it, you have proved your persistent courage under hard labor, trial and difficulty, for three long years at a time when every natural instinct in a young girl calls aloud for happy, careless freedom. Secondly, you have proved that you have acquired the knowledge and proficiency demanded by your chosen profession. This is no mean accomplishment, for many fall by the wayside, unwilling or unable to undergo the strain and hardship.

If I may digress for a moment, I would like to say a word about the physicians. I confess that I like to be in their company. I like to hear them talk shop. In this age of industrialism and of the automobile, occupational accidents and diseases and automobile injuries occasion many lawsuits, and the physician is called upon frequently to testify in court. I admire their judgment and, I may say, their dexterity under the fire of cross examination. When crowded closely by an artful cross-examiner they will let loose a volley of polysyllabic words that will startle the sleepest juror into instant wakefulness, will confound and disgust the cross-examiner, and will amaze and, sometimes, amuse the court. A witty Frenchman once said that language was used to conceal thought. He surely was a physician. Young ladies, if you are called upon to testify in court, and you may be at any time, take a leaf from the doctor's book, say as little as possible, and volunteer nothing.

I have always thought and frequently have said that the medical and surgical profession is the highest of the professions, and you, young ladies, are indispensable to it. The alleviation of pain and suffering is a blessed thing. You have adopted a noble profession. Let no one cry it down or belittle it. As the physician and surgeon is proud, and justly proud, of his profession, so be you proud of yours. Maintain your ideals, and

conduct yourselves in such manner that no one can point the finger of scorn at you or your calling.

It is not necessary for me to say anything in respect of the hospital at which you have received your training. It speaks for itself. It stands as a proud monument to its founders. From the conception of two earnest and capable men it has taken life and is still expanding. It is peculiarly an institution of our county, of which we are proud, and on which we more and more rely. The fact that it has seen fit to stamp you as competent is a sufficient proof of your competency as nurses, and you need not fear that your credentials will be questioned.

You are about to go out in the world to practice your chosen profession. It will not make you rich. You will have periods of doubt and discouragement, and so does every professional man or woman. You will sometimes wonder whether your long labor has been worth while; but every day the desirability and the necessity for hospital attention is more appreciated. Every day the need for the skilled nurse in the home is more recognized. The government—state, county and municipal—are constantly expanding their health services. The door of opportunity for the proficient nurse is always opening wider. You need have no fear. Anyone who can face and overcome the years of toil which every student nurse goes through need have no fear of the future; and who knows but that you will marry some old rich patient who will soon shuffle off this mortal coil and leave you a young widow with houses and lands and stocks and bonds; and if he proves stubborn and insists on living, you can nurse him without pay the rest of his days.

There are few callings in which man does not claim preeminence over women. Please take note that I use the word claim. He claims, of course, that he is a better minister of the Gospel, and you may perhaps recall the saying of crusty old Samuel Johnson, who lived a century and a half ago, that a woman's preaching was like a dog walking on its hind legs. It is not well done, but it is surprising that it is done at all. That, of course, is the reaction of a sour old man of ancient days. Man claims to be a better lawyer, a bet-

ter engineer, a better dentist, a better physician and surgeon, a better teacher, a better artist, and not to stop there, he claims to be a better dressmaker and points to the famous Parisian dressmaking establishments which are conducted by men; he claims to be a better cook, and calls your attention to the fact that the famous chefs are men. He claims to be a better beauty specialist and hairdresser, and I could go in indefinitely with the claims of the male sex in the various fields of human endeavor, but being peacefully inclined and not wanting to provoke a riot, I shall not pause to argue the merits of the claims of man, but I hasten to say that there is one field in which man, so far as I know, does not claim preeminence and that is the field of nursing. In this field his silence is eloquent. There he pays tribute to the qualities with which woman has been so divinely endowed: patience, tenderness, sympathy, and deftness. When bold, masterful man is faced with illness or suffering and pain, he loses his swagger, resigns his dominance, and thanks his God for the presence of the patient, tireless, sympathetic woman to minister to the needs and wants.

I recall the lines of Sir Walter Scott: "Oh Woman, in our hours of ease, uncertain, coy and hard to please; when pain and anguish wring the brow, a ministering angel thou." Ladies, you can well afford to ignore the sly dig at your sex contained in the first lines, in view of the truth and beauty of the sentiment of the last lines—"ministering angel." What two words could more beautifully express a universal truth?

Man, generally speaking, has not the attributes of a good nurse. In the sick room he is awkward and noisy, and lacks that peculiar kind of courage with which woman is endowed. In the face of pain and suffering, of broken bones and dripping blood, man is disposed to cower and to shrink, but an allwise Providence has made provision, for, in the beautiful language of a famous surgeon, John Chalmers DaCosta: "Here comes woman, white capped and cheeful, to comfort and to bless."

One who has just experienced the competent and kindly care of Beebe Hospital nurses wishes you all good fortune.

MISCELLANEOUS

Scientific Exhibit: A. M. A.

Application blanks are now available for space in the scientific exhibit at the St. Louis session of the American Medical Association, May 15-19, 1939. Attention is called to the fact that the meeting is a month earlier than usual, and applications close January 5, 1939. Blanks will be sent on request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn St., Chicago, Ill.

American Board of Obstetrics and Gynecology

The next written examination and review of case histories for Group B candidates will be held in various cities of the United States and Canada on Saturday, February 4, 1939, at 2:00 p. m. Application for admission to this examination must be filed on an official application form in the office of the secretary at least sixty days prior to this date (or before December 4, 1938).

The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire board, meeting in St. Louis, Mo., on May 15 and 16, 1939, immediately prior to the annual meeting of the American Medical Association. Application for admission to Group A examinations must be on file in the secretary's office by March 15, 1939.

For further information and application blanks, address Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh (6), Pa.

Propaganda for Reform

Arthranol—Another "Cure" for Arthritis. In *Time*, September 26, appeared the statement:

"Last week at a meeting of the Atlantic County Medical Society, 60-year-old Dr. Samuel Stern of Atlantic City announced that he had successfully used a new drug, Arthranol, for the treatment of arthritis. Arthranol is a highly complex salt made from a nitrogen compound, phosphorous and iodine."

This product is marketed by the Atlantic Research Foundation, whose president and director is Dr. Stern. In reply to a request

for information in 1936, Dr. Stern stated: "The new chemical compound consists of ammonia, 26.1 per cent, phosphorous 4.7 per cent, and iodine 69.2 per cent." This statement, of course, was entirely inadequate. Recently an inquiry was telegraphed to Dr. Stern asking again about the composition of the product and about the literature. In the circular that accompanied Dr. Stern's reply the product was described as "amino-phospho salicyl, Benzoyl, iodide." Dr. Stern gave the following composition for the product:

Average Analysis of Arthranol Per Cent

Total ammonia .....(NH ₃)	15.02071
Ammonium phosphate di-basic .....(NH ₄) ₂ HPO ₄	24.9165
Ammonium iodide (NH ₄) I	3.1887
Ammonium chloride .....(NH ₄ .Cl)	9.7030
Ammonium benzoate .....(C ₆ H ₅ .CO.O.NH ₄)	32.5290
Ammonium salicylate .....(C ₆ H ₄ (OH).CO.O.NH ₄)	20.0390
Water	9.0000

The statement of composition indicates that there is nothing wonderful in the preparation; the product apparently is not of the same composition as that stated in 1936. The largest component seems to be ammonium benzoate, which years ago was generally discarded in the treatment of "rheumatism" in favor of the more valuable salicylates. Over half the mixture, according to the information given, consists of ammonium benzoate and ammonium salicylate. Alkali iodide, another ingredient, has been used for years in certain forms of arthritis. The composition of Arthranol does not warrant the optimistic claims made for it. All the active ingredients have, in fact, been employed many times before. (*J. A. M. A.*, Oct. 8, 1938, p. 1381).

Chromaray-Trioray.—The Bureau of Investigation reports that the commercial possibilities of the use of eolor as a "patent medicine" have been appreciated by various faddists and quacks for some time. Recent additions to this field are the "Chromaray" and "Trioray" of E. A. Ernest of the Ernest Distributing Company of Milwaukee. A few years ago the Ernest Distributing Company handled the fantastic gadgets put out by Dimshah P. Ghadiali, who has exploited Spectro-Chrome therapy continuously for

(Continued on Page 239)

EDITORIAL

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Vol. X NOVEMBER, 1938 No. 11

DR. PARRAN SPEAKS

The Surgeon-General of the U. S. Public Health Service, Dr. Thomas Parran, Jr., (whose father, however, is Benjamin Parran) addressed the New Century Club of Wilmington on November 9th, on the subject: The Road Ahead in Public Health. Dr. Parran gave his audience, which by invitation included physicians and their wives, health officers, and nurses, a brief resume of the five recommendations of the National Health Conference of last July. He mentioned, in passing, that the American Medical Association had approved all these recommendations except that (No. 4) which proposed compulsory health insurance, a proposition which he did not unequivocally espouse, somewhat to

our surprise. Further, he stated that, in his opinion, any changes made in the distribution of medical care should come gradually—the time-honored thesis of the A. M. A.: “Evolution and not revolution.”

The rather restrained language, coming as it did the day after the election, may have been influenced materially by the previous day's happenings, about which it is certain that neither he nor any of his bureaucratic associates in Washington can claim that they “planned it that way.” The fact that the great American people had so definitely declared that henceforth they were going back to the road to sanity and solvency may have been one reason—perhaps the main reason—why Dr. Parran barely mentioned compulsory health insurance, which, according to the government's own estimate, will cost the American tax payer 4 to 4.5 per cent of the national income, or the tidy little sum of \$2,650,000,000 a year! This in addition to the first three proposals, which will ultimately cost \$850,000,000, and to proposal No. 5, which will cost another \$850,000,000 a year!

Restrained, yes, agreeably and surprisingly so, yet we got the impression he was definitely trying to sell to the American public the government program practically as is. He did pull his punches in most places, yet in others he resorted to the sophistry that seems characteristic of the present-day administrationists. For instance, in passing by Recommendation No. 2, in reference to the expansion of hospital facilities, he stated (we hope we have the figures correctly) that there are 1300 counties in the U. S. A., with a population of 17,000,000 people, that do not have a hospital. Then he added: “Perhaps not all of these counties need a hospital.” Despite this after-statement, he left in the minds of the laymen present the impression that our hospital facilities are woefully deficient. Why did he not continue and tell these laymen that 98.5 per cent of the American people live within 30 miles of a hospital; only a one hour ride today? He could have told them that only

1.5 per cent of our people are more than 30 miles from a modern hospital, and that most of these unfortunate 2,000,000 people live in the Rocky Mountain territory, where hospitals must of necessity be widely spaced. And in speaking of the proposal to erect new hospitals with some 360,000 beds, he utterly failed to tell his hearers that for several years past the average occupancy of the 1,500,000 beds we already have has been only 60-65 per cent! It is fair to ask why does a speaker who knows all the facts suppress those that do not readily lend themselves to his purposes? In other words, why cannot a government man present his case fairly? Sooner or later the public will get *all* the facts, and if eventually, why not now?

WASHINGTON NEWS LETTER

From Congressman William F. Allen

HEALTH PROGRAM

A program for making over the existing system of medical care is sure to be studied by the incoming Congress. The American Public Health Association's 6,100 members are looking forward to the time when Federal, state and local agencies will spend up to \$850,000,000 a year guarding our country's health. The program being discussed is on a ten-year basis, and will include research to combat all diseases and maternal mortality; the cost of providing medical care for the dependent and unemployed persons which would include doctors' and dentists' services, hospitalization and purchase of medicines. Chances of the adoption of this program are favorable. (Nov. 5, 1938.)

Station WJZ — Wednesday — 2 P. M.— That's "Your Health!" the educational radio program sponsored by the A. M. A., for the schools, to supplement their regular health instruction. And parents, you too, listen in—it won't hurt you to know as much about these things as your children do. Incidentally, in its field, "Your Health!" received the First Award of the Institute for Education by Radio, for 1938.

The Homeopathic Medical Society of Delaware, state and peninsula, held its 56th An-

nual Session in Wilmington on November 10, 1938. The scientific program consisted mainly of a symposium on diseases of the gall bladder. The feature of the session was the dinner-speech of Dr. Lucy S. Hertzog, of Chardon, Ohio, who delivered a most informative talk on "Socialized Medicine from Many Angles." One had to listen only five minutes to realize that this was a speaker who knew what she was talking about.

The Red Cross wants you—and your dollar. Join now—Armistice Day till Thanksgiving Day.

A MUCH-NEEDED JOURNAL

Volume 1, Number 1 (September, 1938) of the *American Journal of Medical Jurisprudence* has just reached us. This newcomer is replete with interesting and informative articles by physicians and barristers especially competent to write within their respective fields. The subjects cover the whole gamut of medical jurisprudence—civil, criminal, and legislative. The new *Journal* is the only one of its kind in this country, is the official organ of the American Medico-Legal Association, and already has attained a circulation of over 6000. A Technical Advisory Board and an Advisory Council has just been announced containing the names of unquestioned authorities in the fields of legal medicine, police science, etc., thus creating an authoritative source of information for both the legal and medical professions.

The Editor-in-Chief is Dr. Frederick C. Warnshuis, formerly Speaker of the House of Delegates of the American Medical Association and lately secretary of the California Medical Association and editor of *California and Western Medicine*, whose ability and experience is a guarantee of the high tone which will characterize the new *Journal*. The publication office is at 137 Newbury street, Boston, Mass., and the price is \$10.00 per year.

THE JOURNAL wishes Dr. Warnshuis and his unique publication every success.

MISCELLANEOUS

Propaganda for Reform

(Continued from Page 236)

years. Ghadiali's thesis was that in health the preponderating color-waves of the elements in the human body—oxygen, hydrogen, nitrogen and carbon—are "in balance." When they get "out of balance" the human body is diseased; *ergo*, to cure disease, administer the colors that are lacking or reduce the colors that are too brilliant! Later Mr. Ernest ceased acting as "exclusive distributor" of the Ghadiali devices, and in 1936 he was advertising that his company was acting as "National Distributor" for another "color ray" concern, that of Karl von Schilling, whose device was dubbed "Vita Chrome (Life Colors)." By December, 1936, Mr. Ernest appears to have severed connection with von Schilling, and from then on seems to have put out his own colored-lights devices, the chief of which Ghadiali claims is an infringement on his own machine. The "Chromaray" resembles essentially the "spotlight" used in theatres and dance halls to project colored lights on the stage or the dance-floor. The source of light is an electric bulb. The "Trioray" looks like three hand mirrors having metal frames with green and blue lenses, respectively, in the place of mirrors. These are used where electric current is not available, and merely focus the sun's rays through the blue or green lens on to the patient—or victim. According to the Chromaray advertising, this device has been "Successfully Used for the Treatment of" a list of thirty pathological conditions ranging alphabetically from Accidents and Appendicitis through Cancer, Cataract, Diabetes, Heart Disorders, High Blood Pressure, Low Blood Pressure, Pneumonia, Rupture, Sinus Trouble and Sleeping Sickness to Tuberculosis and Venereal Disease. From the Chromaray advertising one learns that red light will "energize" the liver, yellow will move the bowels, orange will supply any need of calcium and green will kill germs and take the place of chlorine. (*J. A. M. A.*, Oct. 15, 1938, p. 1490).

BOOK REVIEW

Intern's Handbook. Edited by M. S. Dooley, M. D. Second Edition. Pp. 523. Cloth. Price, \$3.00. Philadelphia: J. B. Lippincott Company, 1938.

The new edition of the Intern's Handbook, the work of a large group at the College of Medicine of Syracuse University, has considerable new material that did not appear in the edition of 1929, and the whole text has been revised and reset. This little manual, divided into six sections, contains statements of the greatest importance to every intern. It would be a fine thing if all hospital boards could make a present of this handbook to each and every intern.

How to Conquer Constipation. By John F. Montague, M. D. Pp. 244. Cloth. Price, \$1.50. Philadelphia: J. B. Lippincott Company, 1938.

This is the second book by this author, for lay reading. It answers the questions that occur frequently in practice, said answers being the orthodox ones, and include items concerning diets, drugs, exercises, etc. As indicated in the author's first book, "Troubles We Don't Talk About," his liking for psyllium seeds continues. The style is quite readable.

Doctors, I Salute! By Emilie Conklin. Pp. 92. Cloth. Winona Lake, Indiana: Light and Life Press, 1938.

This is a collection of 72 short poems addressed to physicians and nurses, for whom she has a profound admiration. Her style is reminiscent of Edgar A. Guest; her technique, of Kipling. Many of the poems are really delightful; we especially liked the one entitled "Error." A book for your reading room table.

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'Benzedrine Sulfate Tablets' have now been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for use in the treatment of narcolepsy and post-encephalitic parkinsonism, and to facilitate roentgenologic examination of the gastrointestinal tract. The Council also recognizes the usefulness of 'Benzedrine Sulfate' in institutionalized patients for the treatment of depressive psychopathic states.

During the past three years, more than seventy original articles dealing with the uses of 'Benzedrine Sulfate Tablets' (amphetamine sulfate, S.K.F.) have appeared in medical and scientific publications.

The following would seem to be of especial interest at this time.

NARCOLEPSY

ULRICH, H.: Narcolepsy and Its Treatment with Benzedrine Sulfate—New Eng. J. Med., 217:696, 1937.

GASTRO-INTESTINAL EFFECTS

MYERSON, A. and RITVO, M.: Benzedrine Sulfate and Its Value in Spasm of the Gastro-Intestinal Tract—J.A.M.A., 107:24, 1936.

POST-ENCEPHALITIC PARKINSONISM

DAVIS, P. L. and STEWART, W. B.: The Use of Benzedrine Sulfate in Post-Encephalitic Parkinsonism—J.A.M.A., 110:1890, 1938.

DEPRESSION

WILBUR, D. L.; MACLEAN, A. R. and ALLEN, E. V.: Clinical Observations on the Effect of Benzedrine Sulfate—J.A.M.A., 109:549, 1937.

WOOLLEY, L. F.: The Clinical Effects of Benzedrine Sulphate in Mental Patients with Retarded Activity—Psych. Quart., 12:66, 1938.

MISCELLANEOUS

REIFENSTEIN, E. C., JR. and DAVIDOFF, E.: The Treatment of Alcoholic Psychoses with Benzedrine Sulfate—J.A.M.A., 110:1811, 1938.

HILL, J.: Benzedrine in Seasickness—Brit. Med. Jour., ii:1109, 1937.

LESSES, M. F. and MYERSON, A.: Human Autonomic Pharmacology. XVI. Benzedrine Sulfate as an Aid in the Treatment of Obesity—New Eng. J. Med., 218:119, 1938.

Present Status of Benzedrine Sulfate — Report of the Council on Pharmacy and Chemistry — J.A.M.A., 109:2064, 1937.

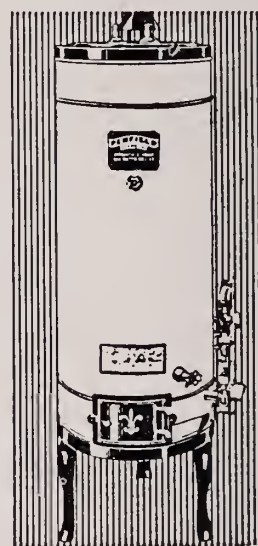
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The Council on Pharmacy and Chemistry of the A.M.A. has adopted amphetamine as the descriptive name for α -methylphenethylamine, the substance formerly known as benzyl methyl carbinamine. 'Benzedrine' is S.K.F.'s trademark for their brand of amphetamine.

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The swaddled infant pictured at right is one of the famous works in terra cotta exquisitely modeled by the fifteenth century Italian sculptor, Andrea della Robbia. In that day infants were bandaged from birth to preserve the symmetry of their bodies, but still the gibbous spine and distorted limbs of severe rickets often made their appearance.



A bambino from the Foundling Hospital, Florence, Italy,—A. della Robbia

Glisson, writing in 1671, described an ingenious use of swaddling bands — “first crossing the Brest and coming under the Armpits, then about the Head and under the Chin and then receiving the hands by two handles, so that it is a pleasure to see the Child hanging pendulous in the Air . . . This kind of Exercise . . . helpeth to restore the crooked Bones. . . .”

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“This is observed to happen more in the neighborhood of Rome than in other places,” he wrote. “If no one oversees the infant's movements, his limbs do in the generality of cases become twisted. . . .

Hence, when he first begins to sit he must be propped by swathings of bandages. . . .” Hundreds of years later swaddling was still prevalent in Italy, as attested by the sculptures of the della Robbias and their contemporaries. For in-

fants who were strong Glisson suggested placing “Leaden Shooes” on their feet and suspending them with swaddling bands in mid-air.

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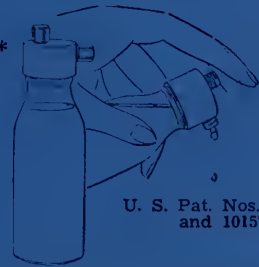
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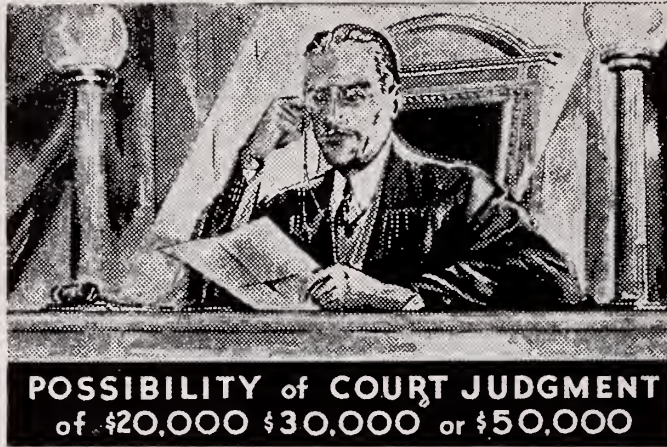
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RECENT ADVANCES IN THE SCIENCE OF NUTRITION

IV. Some Accomplishments of Vitamin D Research

● By 1932, many of the basic facts concerning Vitamin D had been clearly established (1). At that time, the International system of denoting vitamin D unitage had not been universally adopted. However, the antirachitic potencies of a wide variety of biological materials had already been explored; the need for standardization of assay methods was appreciated; the minimum requirement of infants and children for vitamin D had been estimated; and the probable "multiple" nature of the vitamin definitely indicated. Since 1932, the importance of vitamin D in human nutrition and the challenge of the many unanswered questions regarding this factor have served to stimulate research both in the clinic and in the laboratory. It is of interest to note some of the outstanding advances made in our knowledge of vitamin D which the past six years have brought. It is now known that at least ten different sterol derivatives are capable of exhibiting the physiologic properties of vitamin D. Of these, only two may be considered of prime importance as far as practical application in human nutrition is concerned, namely, the activation products of ergosterol and 7-dehydro-cholesterol. The remaining forms are of considerable theoretical importance in that their identification has completely established the multiple nature of vitamin D (2). Further research has also defined more closely not only the vitamin D requirements of normal infants and children, but also of premature infants and those peculiarly susceptible to rickets. Apart from conditions of pregnancy and lactation, the possible re-

quirement of the human adult for vitamin D is still not known (3). The International system of expressing vitamin D potency has been universally adopted; bioassay methods have been standardized (4); and last but not least, a high degree of standardization has been attained, not only in regard to the antirachitic potency of Vitamin D preparations, but also as to the extent to which the vitamin D contents of certain foods should be increased by the various means available (3). While some foods, including some canned foods of marine origin, are valuable food sources of vitamin D (5), no combination of common foods—as they occur naturally—can supply the demands of the infant and child for the antirachitic factor. Although there is no reason as yet to believe that the normal adult requirement for vitamin D is not largely fulfilled by a varied diet of protective foods, it is definitely known that the infant and child dietaries must be supplemented with or fortified by vitamin D.

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- (1) 1932. J. Amer. Med. Assn. 99, 215 and 301. (4) 1936. U. S. Pharmacopeia, XI Decennial Revision.
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MEDICAL SOCIETY OF DELAWARE PROCEEDINGS: 149th ANNUAL SESSION

October 11, 1938

TUESDAY MORNING SESSION

The First General Session of the One Hundred and Forty-Ninth Annual Session of the Medical Society of Delaware convened at ten-fifty o'clock in the New State House, Dover, Clarence J. Prickett, president of the society, presiding.

PRESIDENT PRICKETT: Gentlemen, the One Hundred and Forty-Ninth Annual Session of the Medical Society of Delaware will now come to order.

It is with real pleasure that I present to you my personal friend, the Reverend Dr. James W. Colona, pastor of Asbury Methodist Episcopal Church, Smyrna, Delaware, who will give the invocation. You will please rise. Dr. Colona!

REV. JAMES W. COLONA: Almighty God, our heavenly father, unto whom all hearts are open, and from whom no secrets are hid, we bow our heads in thy presence in the very beginning of this Session, expressive, we trust, of our feeling of reverence for thee and recognition of thy sovereignty in our lives. We look to thee, our heavenly father, as the source of all that is good and the giver of every blessing. Even life itself thou hast bestowed upon each of us, and we beseech thee that in the session that is just beginning here representing this state in a larger section of the world it may please thee to be present to manifest thy leadership in the messages that are brought and in all the discussions that go on in the handling of these affairs.

We ask thy blessings, our heavenly father, to rest upon the administration. May the President be sensible of thy divine guidance, and all of those who have anything to do with the handling of the interests represented in this State Medical Society not fail to look to thee for wisdom from above for their problems, and for courage and inspiration in the actual performance of their duties.

We beseech thee, O heavenly father, to cause us to realize that in the midst of all our daily work, in the pursuit of all our programs, there are things of a higher and spiritual nature which must have a real place in our lives, and the best type of character cannot be built except by the incorporation of the spirit and the ideals represented in the Master of Galilee. We pray that these unseen but spiritual realities may be dominant in the midst of this session here in this place. We pray thy blessings to rest upon every physician who comes from this state or from other states to take part in these sessions. Thou hast given to them a great task, and we thank thee that under thy providence this body of men has been raised up to give themselves to minister

for the protection and preservation of the life of the people committed to their care.

May the blessings of God attend each one here, and in the midst of his own work. And as they go about through the shadows of the night and through the day ministering unto those whose lives become so precious in their sight, may they be conscious that their skill and work will be supplemented by the healing powers of the Master himself, in the restoration and building up of life itself.

We ask thy blessings to rest upon those thousands of people of this state who are in hospitals and shut in in their homes with handicaps and afflictions of the body. In thine own mysterious way we beseech thee to reveal thyself to them as their great physician, restoring to health and strength, building them up in body and soul.

So we pray thee to be present, though we cannot see thee with the natural eye, and under the inspiration of thy spirit, through the guidance of thy wisdom and the unseen presence of power in the life of everyone, we pray thee to be present in all the ministrations and give thine own divine handling to all the interests centered in this State Medical Society. We ask all of these blessings in the Master's name. Amen.

PRESIDENT PRICKETT: Thank you, Dr. Colona.

Gentlemen, we are indeed very highly honored this morning in having with us a man who is known throughout the state of Delaware and beyond, so esteemed by the people of Dover as to make him the Mayor of Dover for the fourteenth consecutive year. I now take pleasure in giving you the Honorable J. Wallace Woodford, Mayor of Dover.

HON. J. WALLACE WOODFORD: Mr. President, Members of the Medical Society of Delaware: As a usual thing we do not look forward with any peculiar degree of pleasure when we are about to visit the doctor. We sort of approach his office with faltering steps. But this is an unusual occasion this morning. Therefore, I have looked forward with a great deal of pleasure to the opportunity of greeting the doctors of this state upon the occasion of your annual meeting.

I believe that this is the second or third time that I have had this pleasure, and I am delighted to be here this morning. I am not going to indulge this morning in any stereotyped manner of address of welcome. I take it that most of you are Delawareans and therefore no formal word of mine is necessary to make you feel perfectly at home. In Dover we try to generate a bountiful supply of cheerful atmosphere so that the visitor to our city will be able to sense that atmosphere as he comes into the city. I hope that you have sensed the warmth of our welcome this morning and that you will continue to sense that during your sojourn with us.

The medical profession, like every other profession, has traveled a rough and rugged road since its early beginnings. Like other professions, it has passed through a transitional period. The medical profession has traveled a long way since the early days, for instance, of the Israelitish people who looked upon suffering as a penalty for sinning, something that God had sent upon the people as a penalty, and therefore it wasn't considered just the thing to help those in distress. To suffer was to be an outcast from society. The leper was shunned. And no one wished to consort with sinners.

Later on, in the Grecian period, there was a different attitude toward suffering and sickness. The Greeks, as we know, worshipped beauty, beauty not only in material things, but in the human body. Therefore sickness and suffering was looked upon as a blemish and the sufferer was given every encouragement to restore himself to health and harmony. That gave people a chance to help the sufferer, and in that period I believe the foundation of modern medicine was laid.

Then, later on in the Christian era we find still another attitude towards sickness, or towards health—"Whom the Lord loveth, he chasteneth"—and therefore the person who suffered from sickness was looked upon as the elite of society. He was receiving favor from the Lord, and it was a natural thing to help such people. Ministration to the sick was a pious endeavor. In this period, as you know, the great institution we know as the hospital was born.

Then, as we pass down to the present period, which we might call the scientific era, we find a still different attitude towards health, that of the unemotional divorcing sickness and health from superstition and from all the supernatural implications.

It might seem presumptuous on my part as a layman to bring to you these elementary facts in the history of medicine with which you are familiar, but I am doing it for the purpose of bringing out the fact that these transitions in medicine—like the transitions in every other profession and in the life of the world itself—have been largely due or due in part, to changed attitudes of people. The medical profession since its beginning has constantly set up new frontiers. These frontiers in medicine, as in every other phase of life, are symbols of suffering and sacrifice. The early frontiers of America represented suffering and hardship. Life in those frontier settlements was bare, but in those frontier settlements the real American spirit was born, the spirit of self-reliance and independence.

The thought that I want to leave with you this morning is that in this world in which we are living, so confused, in which people are so bewildered, it seems to me in this nation of ours we must set up a new frontier, a frontier of freedom. It was set up here over a hundred and fifty years ago, but we have sort of wandered away from it. Freedom has been such an intimate part of us, so close to us, that we are apt to treat it lightly. That is the way with most everything in life: The things that we prize most highly we are apt to take as a matter of course, and gradually they slip away from us. That is the way with this freedom which was set up here over a hundred and fifty years ago. We are in danger of losing that freedom.

History has a way of repeating itself. It moves in cycles. Back in the dim past we remem-

ber the life of the individual was of very little value. He was a sacrifice to be offered upon the altar of greed and avarice and nationalism. We find that same condition obtaining today. The issue is strictly drawn today between dictatorship and democracy. Dictatorship has very little appreciation of the value of the individual. It treats him with contempt. It denies his humanity. It robs a man of his moral and spiritual consciousness. It strips him of his manhood and leaves him just a fearful animal in the ranks of the mob.

Democracy, on the other hand, exalts human personality. The state exists for the betterment of the individual or for the benefit of the individual. So we find these issues closely drawn today as they were in the ancient times. That is the reason that we in America must raise a new frontier, the frontier of freedom. The trouble about all these "isms" which confront us today is that they are so plausible. They sound so reasonable as we look at them for the first time. It is only in the long range that we suffer disillusionment.

I am bringing these facts to the medical profession this morning because of the position which you occupy in every community. We all realize that there are certain people in every community who make up the bulwark of that community, the real community, and in this country we certainly need to raise up a bulwark against the encroachment of all these strange "isms" which threaten us today. And in this the medical profession has a part.

The changed attitude in the world since the beginning has meant progress to the medical profession. Changed attitudes in every phase of life sometimes mean progress or they can mean just the reverse. It is up to the real American citizen who believes in American tradition and the American principle to see that the attitudes of our people in every community are right, that they are in tune with the American spirit.

So I welcome you today because I believe that this medical profession through its influence in the community can do a great piece of work. We welcome you today because of the great contribution you have made to the life of the world. In the beginning the medical profession was concerned with the individual. Now it has enlarged its interest so that it takes in community affairs, looking after contagious diseases and the general health and welfare of the community. You occupy a prominent place in every community's life. For this reason I welcome you this morning to Dover, the capital of Delaware, and I hope that your stay with us will be pleasant and your deliberations profitable.

PRESIDENT PRICKETT: Thank you, Mr. Mayor. It is fine for you to be with us this morning.

The first scientific paper on the program this morning is by a man for whom I have indeed the greatest esteem. I now take pleasure in introducing to you Dr. I. S. Ravdin, George Leib Harrison, Professor of Surgery, University of Pennsylvania School of Medicine, who will speak to us on "Surgical Problems of Hyperthyroidism."

Dr. Ravdin!

Dr. Ravdin presented his prepared paper, illustrated with slides, which was discussed by Dr. H. V'P Wilson.

PRESIDENT PRICKETT: Gentlemen, the next order is luncheon at the Hotel Richardson at twelve-fifteen. I hope you will all be there. Dr.

Ravdin, I hope you will be able to stay for luncheon, too.

I also want to announce at this time that a preview of the motion picture, "Birth of a Baby," is to be shown at the Capitol Theatre this afternoon at four forty-five, just following our scientific program of the afternoon. They must have an endorsement of that picture before it can be shown throughout the state. It was endorsed, I believe, by the American Medical Association, and by a few states, with certain recommendations as to limiting the age of people attending the picture. We would like as many of you as possible to attend, since we must pass some sort of resolution regarding it.

We will resume our program here at two o'clock.

...Thereupon the session adjourned at twelve o'clock...

October 11, 1938

TUESDAY AFTERNOON SESSION

The session convened at two thirty-five o'clock, President Prickett presiding.

PRESIDENT PRICKETT: The meeting will come to order.

The first paper of the afternoon will be by Dr. E. A. Schumann, Professor of Obstetrics, University of Pennsylvania Medical School, who will speak on "The Classical Caesarean Section: Its Advantages and Technique."

DR. E. A. SCHUMANN: Mr. President, Members of the Delaware Society: It is a privilege and pleasure to come to this historic region and to see so beautiful a meeting room, though I did appear to be a legislator rather than a doctor as I sat in the Chair there.

...Dr. Schumann then presented his prepared paper which was discussed by Drs. C. H. Davis and W. T. Chipman.

I next want to apologize to Dr. Pincoffs for altering our routine. Dr. Pincoffs was unavoidably delayed on the way down. We were sorry to hear of your misfortune. We will now hear from Dr. Maurice C. Pincoffs, Professor of Medicine at the University of Maryland, on "Arterial Hypertension."

Dr. Pincoffs then presented his paper which was discussed by Drs. J. R. Elliott and Ira Burns.

PRESIDENT PRICKETT: We are very fortunate to have with us this afternoon Dr. Lawson Wilkins, Associate in Pediatrics at Johns Hopkins University School of Medicine, who will now address us on "Hypothyroidism in Children."

...Dr. Lawson Wilkins then presented his prepared paper which was discussed by Drs. C. E. Wagner, John Baker and C. H. Davis.

PRESIDENT PRICKETT: I want to thank you for a very interesting paper and discussion, Dr. Wilkins.

I have three short announcements to make.

Dr. Hewitt W. Smith, President of the Kent County Medical Society, was absent from the meeting this morning and absent from the luncheon at noon. We wondered why. Dr. and Mrs. Smith are to be congratulated. It is a girl. (Laughter and applause).

Dr. Carl H. Davis has asked me to announce that his pictures of a Mediterranean cruise will be shown tomorrow night in this room following Dr. Fishbein's address. He was to show the pictures this afternoon to the Ladies' Auxiliary but they are unable to darken the room sufficiently, so

they will be shown immediately after Dr. Fishbein's address.

Dr. Woodbridge Morris of the State Board of Health asks me to call attention to the State Laboratory Exhibit under the main stairway in this building. Free biologicals are exhibited, Wassermann reactions shown, and a Type 1 pneumonia is under the microscope.

I am pleased to introduce at this time, Dr. Francis G. Harrison, Associate Professor of Urology, of the University of Pennsylvania, who will give us a paper on the "Bloodstream Infections in Urological Cases."

DR. FRANCIS G. HARRISON: I appreciate the invitation to address you at your One Hundred and Forty-Ninth Annual Session. Such long experience is one of the encouraging things in this country that is changing so often. I will try to be as brief as possible. The hour is waxing late. Perhaps if I read the first part of this and show you the slides, it will be sufficient.

...Dr. Harrison then presented his prepared paper, which was discussed by Drs. B. S. Dallett, N. R. Washburn and L. W. Anderson.

PRESIDENT PRICKETT: I want to thank Dr. Harrison for this very fine paper.

DR. W. EDWIN BIRD: The hour is getting late, and unless you have some further announcements, Mr. President. I have a motion to make. I move that the Society extend a rising vote of thanks to Dr. Ravdin, Dr. Pincoffs, Dr. Schumann, Dr. Wilkins and Dr. Harrison.

...The motion was carried unanimously, the members arising and applauding...

PRESIDENT PRICKETT: Gentlemen, this concludes the program for the afternoon. The House of Delegates meets in this same room at eight o'clock tonight. Tomorrow we will again have a very interesting program. I hope you will all be here. I am sure you will find it worth your while.

Good night.

...Whereupon the session adjourned at five-fifty o'clock...

October 12, 1938

WEDNESDAY MORNING SESSION

The session convened at nine fifty-five o'clock, President Prickett presiding.

PRESIDENT PRICKETT: The meeting will come to order, please.

We will have the report of the House of Delegates by the Secretary.

...Secretary Gilliland read the report of the House of Delegates. (See complete transactions, this issue).

DR. BIRD: I move the report of the Secretary be received.

...The motion was duly seconded...

PRESIDENT PRICKETT: It is moved and seconded that the report of the House of Delegates be received. All in favor say, "Aye"; opposed, "No." It is so ordered.

Gentlemen, believing it timely, I prepared my Presidential Address on "The Medical Approach to Sex Instruction in the Schools of Delaware," which I shall now read.

...President Prickett then read his prepared paper, which was published in the October issue.

DR. BIRD: Mr. President, did I understand you to request that this Society at this time authorize you to appoint this special committee?

PRESIDENT PRICKETT: That is correct.

DR. BIRD: I so move.

...The motion was seconded by several members...

PRESIDENT PRICKETT: All in favor of that motion signify by saying, "Aye"; opposed, "No." It is carried and so ordered. I thank you.

The first scientific paper on our program today will be on "Clinical Allergy." It gives me great pleasure to present to you Dr. Richard A. Kern, Professor of Clinical Medicine at the University of Pennsylvania School of Medicine, and Professor of Clinical Medicine at the Medical-Chirurgical College of the Graduate School of Medicine, University of Pennsylvania.

Dr. Kern then read his paper, which was discussed by Dr. William Marshall.

PRESIDENT PRICKETT: Has anyone else any discussion to offer on Dr. Kern's talk?

Dr. Cooper will now speak to us on "The Indications for Surgery in the Treatment of Pulmonary Tuberculosis."

Dr. Cooper then read his paper, which was discussed by Dr. L. D. Phillips.

PRESIDENT PRICKETT: Our next order of business this morning is the election of the President for 1939. The President should come from New Castle County. The Chair will entertain nominations for the Presidency of the Society for 1939.

DR. I. W. MAYERBERG: Mr. Chairman- it seems you have the wires crossed. It seems the official nominator isn't on the job this morning.

It gives me great pleasure, Mr. President, to nominate Dr. Meredith I. Samuel, from New Castle county, as President for the coming year.

PRESIDENT PRICKETT: The name of Dr. Meredith I. Samuel has been placed in nomination for the Presidency for 1939. Are there any other nominations?

DR. BIRD: Mr. President, I move that the nominations be closed and that the Secretary cast the ballot.

...The motion was duly seconded...

PRESIDENT PRICKETT: You have heard the motion that the nominations be closed and the Secretary cast the ballot. All in favor of that motion signify by saying, "Aye"; contrary, "Nay." The "Ayes" have it.

...Secretary Gilliland cast the ballot...

PRESIDENT PRICKETT: I declare Dr. Meredith I. Samuel President for the year 1939 of the Medical Society of Delaware.

Dr. Samuel, will you come up? I congratulate you, sir.

PRESIDENT-ELECT SAMUEL: Gentlemen, I want to thank you. This is the greatest honor I have ever had. I assure that I will endeavor to conduct the office to your satisfaction, and in that connection I would ask the cooperation of every member.

Thank you.

PRESIDENT PRICKETT: The next order of business is adjournment.

DR. BIRD: Mr. President, if there is no further business, I move that this Society extend to Dr. Prickett, Dr. Kern and Dr. Cooper a rising vote of thanks for their addresses this morning.

...The motion was duly seconded, put to a vote, and carried unanimously by a rising vote, as the members applauded...

PRESIDENT PRICKETT: This concludes the program for the morning session.

...The session thereupon adjourned at 11:45 o'clock...

PRESIDENT PRICKETT: The meeting will please come to order.

The opening paper this afternoon is by Dr. Thomas M. McMillan, Assistant Professor of Clinical Medicine, University of Pennsylvania School of Medicine, and Associate Professor of Cardiology, who will address the Society on, Cardiology—The Problem of Heart Disease as It Stands Today."

DR. THOMAS M. McMILLAN: Mr. President, Ladies and Gentlemen: Before I start I would like very much to express my appreciation to your committee for asking me to be with you today.

Partly with the committee's help I am going to attempt to do something that is rather difficult. I am going to attempt to cover the whole field of cardiology in some sort of fashion in a half hour's time.

From time to time I shall show lantern slides. I won't stop to describe them, but they will have some bearing on what I am talking about at the moment. In order to stay within my time limit I am going to read this manuscript if you will permit me.

...Dr. McMillan then presented his prepared paper, illustrated with slides, which was discussed by Drs. O. S. Allen, J. B. Waples, R. W. Tomlinson and E. R. Miller.

PRESIDENT PRICKETT: I am glad to introduce to you Dr. Raymond A. Vonderlehr, Assistant Surgeon General of the United States Public Health Service, Washington, D. C., who will give us a paper on "Present Day Control of Venereal Diseases From a State and National Viewpoint."

...Dr. Vonderlehr then presented his prepared paper, illustrated with slides, which was discussed by Drs. I. L. Chipman, J. R. Beck, R. C. Holcombe, V. D. Washburn, M. A. Tarumianz and T. E. Hynson.

PRESIDENT PRICKETT: Has anyone else any comment to make?

Have you anything further to say, Dr. Vonderlehr?

DR. VONDERLEHR: No.

PRESIDENT PRICKETT: It was a very fine paper we heard, and a very nice discussion.

During my tenure of office I have anticipated one certain definite pleasure. That pleasure is now at hand, and it is certainly with the deepest gratification that I introduce my personal friend and former classmate, Dr. B. P. Widmann, Assistant Professor of Radiology, Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania. Dr. Widmann!

...Dr. B. P. Widmann then presented his prepared paper, illustrated with slides, which was discussed by Drs. G. C. McElpatrick, Ira Burns, J. J. Hines, V. D. Washburn and B. G. Dallett.

PRESIDENT PRICKETT: Has anyone else anything to say?

DR. McELPATRICK: I move we give Dr. Widmann a rising vote of thanks.

...The motion was duly seconded, put to a vote and carried unanimously as the members arose and applauded...

PRESIDENT PRICKETT: Does anyone else have anything to say?

This completes our scientific program.

...The session thereupon adjourned at six-five o'clock...

The Society and the Woman's Auxiliary then had dinner together at the Hotel Richardson. The time being limited, there were no speeches, the

October 12, 1938

WEDNESDAY AFTERNOON SESSION

The meeting convened at two-seven o'clock, President Prickett presiding.

President merely introducing the invited guests and the officers.

October 12, 1938

WEDNESDAY EVENING SESSION

The meeting convened at eight-five o'clock, President Prickett presiding.

PRESIDENT PRICKETT: Ladies and Gentlemen: I welcome you to the closing item on the program of the One Hundred and Forty-Ninth Session of the Medical Society of Delaware. As our speaker tonight, we have a man who is nationally known, a well known columnist, the editor of the Journal of the American Medical Association.

It gives me pleasure to present to you Dr. Morris Fishbein!

Dr. Fishbein then addressed the public meeting, his subject being "The National Health Program and American Medicine."

PRESIDENT PRICKETT: I believe Dr. Fishbein has spoken the same thought that the doctors have who belong to this Society. Certainly what Dr. Fishbein says about the fact that no central governing body can tell the needs of the local communities is our thought also. Certainly in our own local community here in the county, as well as in the state, I believe, I do not know of any cases—and if there are some, there are very few—which are going without medical care because of lack of money, because of lack of funds.

I certainly appreciate Dr. Fishbein's being with us tonight. I have enjoyed his address, as I am sure you all have, by the applause which he received. I thank you again.

Immediately following this, Dr. Carl H. Davis, of Wilmington, apropos of Columbus Day, is going to show us some pictures taken on his Mediterranean cruise. Some of those include pictures taken around Columbus' hideout, and probably his place of birth, at least Lisbon, and places like that.

SECRETARY GILLILAND: Mr. President, I move that this Society, before it goes to the next point on the program, give Dr. Fishbein a rising vote of thanks for so ably presenting his talk on American Medicine.

...The motion was duly seconded and carried by a rising vote as the audience applauded...

Dr. Davis then showed his motion pictures, whereupon the meeting adjourned at nine-thirty o'clock...

**MEDICAL SOCIETY OF DELAWARE
TRANSACTIONS: HOUSE OF DELEGATES**

Tuesday, October 11, 1938

The meeting of the House of Delegates of the Medical Society of Delaware convened at eight twenty-five o'clock p. m., at the New State House, Dover, Dr. Clarence J. Prickett, President of the Society, presiding.

PRESIDENT PRICKETT: The House of Delegates of the Medical Society of Delaware, the 149th Session, will now come to order, please.

We will have the roll call by the Secretary.

SECRETARY GILLILAND: As I call the roll will the delegates take seats on the front rows, so that they can be identified?

...Secretary Gilliland then called the roll, the following responding thereto:

New Castle county—Delegates: W. E. Bird, G. W. K. Forrest, R. T. La Rue, G. C. McElpatrick, J. H. Mullin, P. R. Smith, R. W. Tomlinson. Alternates: Ira Burns, J. W. Butler, C. L. Hudiburg, C. M. Lowe, L. D. Phillips.

Kent county—Delegates: J. S. McDaniel. Alternates: H. V. P. Wilson.

Sussex county—Delegates: K. J. Hocker. Alternates: Floyd Hudson.

Councilors: J. D. Niles, William Marshall.

PRESIDENT PRICKETT: Gentlemen, we have a quorum present: twelve delegates seated from New Castle county, two from Kent, two from Sussex, and two Councilors. The number required for a quorum is ten.

We will now have the reading of the minutes of the last Annual Session.

DR. BIRD: I move their reading be dispensed with. They have been published.

...The motion was seconded by Dr. Smith...

PRESIDENT PRICKETT: It is moved and seconded that the reading of the minutes of the last Annual Session be dispensed with. All those in favor say, "Aye"; opposed, "No." It is so ordered.

We will now have the reading of the minutes of the Special Session of the House of Delegates. Dr. Gilliland!

...Secretary Gilliland read the minutes of the Special Session of the House of Delegates, held September 2, 1938, which went on record as opposing any fundamental change in the present status of organized medicine, and as approving any plan that will improve medical care.

PRESIDENT PRICKETT: What is your pleasure, gentlemen?

DR. BURNS: I move the report be accepted.

...The motion was regularly seconded, put to a vote, and carried...

PRESIDENT PRICKETT: The next order of business is the appointment of a Nominating Committee. On this Committee I will appoint: G. C. McElpatrick, New Castle county; J. S. McDaniel, Kent county; K. J. Hocker, Sussex county.

This Committee will now retire and prepare the nominations.

DR. McELPATRICK: Mr. President, I appreciate the honor, but I would rather you would appoint somebody else. This would be the fourth time in twenty-five years that I will have served on the Nominating Committee, and I would like someone else to have the honor.

PRESIDENT PRICKETT: I will appoint Dr. La Rue, then, from New Castle county.

DR. LA RUE: I am very sorry that I cannot accept, either. I served on this Committee last year and ran into a little difficulty.

PRESIDENT PRICKETT: Then I will appoint G. W. K. Forrest.

DR. FORREST: I have been on the Nominating Committee more often than Dr. McElpatrick. I am much older than Dr. McElpatrick. Therefore I will accept. (Laughter).

PRESIDENT PRICKETT: Thank you, Dr. Forrest.

DR. FORREST: Why should you pass the burden over to somebody else? I am perfectly willing to take it.

PRESIDENT PRICKETT: Then that Committee will consist of Drs. Forrest, McDaniel and Hocker. Dr. Forrest being the member from New Castle county will be the chairman of that Committee. You gentlemen will now retire and prepare the list of nominations for the coming year, 1939.

The next order of business is Reports of Officers. The President's Report is first.

...President Prickett presented his prepared report, as follows:

Report of the President

First, I wish to report that I have consulted the three Councilors of the Society in accordance

with the By-Laws and found three county societies in good condition, I have offered my services to them in any matters in which the President might be able to aid them.

I have visited the Kent county society, but have been unfortunate in each attempt to attend the other two county societies' meetings. However, I shall visit them before my term of office expires.

On invitation I attended a meeting of Scientific Committee on May 9th.

At the invitation of Dr. Woodbridge Morris I presided at a very interesting meeting of the Delaware Maternal and Child Health Advisory Committee, on May 11th. The purpose of this meeting was to formulate plans to meet the future medical needs of maternity cases, and to reduce our maternal and infant mortality rate.

On May 19th I attended a joint meeting of the Medical Economics Committees of the state and counties to consider the questionnaires sent out from the American Medical Association offices relative to medical care in the United States. At this meeting Dr. Jost, executive secretary of the State Board of Health offered to tabulate the questionnaire reports in the state and his work along this line has been extremely helpful to the Society. I personally want to thank Dr. Jost for his assistance in this extensive work.

Late in May Vice-President Davidson represented the Society at a meeting of the Committee on Physically and Mentally Handicapped division of the Delaware Citizens' Association to consider the report to be made to the American Public Welfare Association which was at the time investigating the situation in Delaware with regard to social agencies.

I was much pleased to receive an invitation to attend the annual outing of the New Castle County Society on The Delaware State Hospital grounds on June 21st. We had a splendid time and Dr. Lawrence J. Jones, president of the New Castle County Society was, as usual, a genial host.

As your President I was highly honored by being invited to a dinner, which I attended, given in honor of Dr. Frederick Banting by Mr. Francis V. du Pont and Dr. Tarumianz at the Wilmington Country Club on June 28th.

On June 10th I wrote United States Senators and Congressmen urging their support in the passage of a Bill authorizing the construction of a new building for the Army Medical Library and Museum. According to the *Journal A. M. A.* of June 18th this Bill was passed by Congress and "at last the world's mightiest collection of medical literature and one of the largest of medical museums will be given adequate quarters."

On August 13th I attended a special meeting of the Committee on Medical Economics which met to consider a resolution offered by the Farm Security Administration to arrange for the payment of certain medical bills contracted by certain low income farmers who are in process of rehabilitation. The report of this will be given by our Secretary.

On September 2 I called a special meeting of the House of Delegates to instruct our delegate to the special meeting of the House of Delegates of the American Medical Association.

Commercial exhibits have been omitted this year since the companies contacted had not arranged their budget to take care of the expenses of the exhibit. However, the Delaware State

Board of Health and the United States Public Health Service have arranged exhibits.

It has been a real pleasure to me to serve as your President and at this time I wish to thank the officers, the chairmen and members of all committees, the speakers and discussors on our program, and each and every one of you for the loyal support I have received. Our efficient Secretary, Dr. Gilliland, has kept me informed constantly on all matters pertaining to his office and is to be congratulated on the excellent manner in which he has managed the affairs of his office. I also wish to thank the state of Delaware for the use of this building during this session.

The Committee on Scientific Work has labored hard and has arranged a program of very high calibre which I am sure will be helpful to all of us and which I trust you will enjoy.

In closing I wish to make one recommendation. Because of the large amount of work required of the President of the Society I wish to recommend that the ascendancy rule be invoked regarding the President:— That is that the Vice-President in the county to which the Presidency is due, the following year, be elected, with the idea that he ascend to the Presidency the following year. This would allow the Vice-President to acquaint himself with the work of the President.

Respectfully submitted,

C. J. PRICKETT.

PRESIDENT PRICKETT: What is your pleasure, gentlemen?

DR. LA RUE: I move the report be accepted.

...The motion was regularly seconded, put to a vote, and carried...

PRESIDENT PRICKETT: Next is the report of the Secretary, Dr. Gilliland.

...Secretary Gilliland presented his prepared report, as follows:

Report of the Secretary

Before proceeding with the body of my report I would like to take this opportunity of thanking the Society for the honor of serving as Secretary of the Medical Society of Delaware during the past year.

It has been interesting to me to observe the workings of the past organization of medical societies at first hand and take an active part in it. It has been my good fortune to visit the headquarters of the American Medical Association in Chicago to take part in the Annual Conference of Editors and Secretaries. It has also been my privilege to attend as an observer the special meeting of the House of Delegates of the American Medical Association held in Chicago in September of this year. At this time I would like to say that the office of Secretary is one which requires considerable time and work and can be as big or as small as the man who holds the office. I would like to pay tribute also at this time to the Secretaries of the county societies for their cooperation in answering correspondence and submitting various reports.

It is my belief that the offices of Secretary and Editor could be combined successfully with great benefit to the Society. I am informed, however, that an Amendment to the present By-Laws would be required for this change. It is also my belief that the office of Secretary would better serve the organization if it were held by a Wilmington physician, inasmuch as the majority of the medical men in the state are concentrated there.

During the past year the following activities have been handled by the Secretary:

1. In order to bring the files of the Society up to date an individual questionnaire was sent to each member of the Society with a self-addressed, stamped return envelope. This questionnaire, when completed, contained information necessary for the Secretary's records. In connection with this an individual folder was provided for each member in which all correspondence and information concerning this member was kept on file.

2. During the year the details of the survey being conducted by the American Medical Association have been handled through the Secretary's office. This survey has entailed considerable correspondence and to date has met with a very mediocre response. The pharmacists of the state have responded fairly well in returning their blanks. The Dental Society, however, has responded very poorly.

In connection with this survey a special meeting of the state and county committees on Medical Economics was held on May 19, at the Welfare Home. A copy of the minutes of this meeting will be filed by the Secretary.

The Secretary wishes to report that valuable assistance in the distribution and collection of these various forms was given by the State Board of Health and the Wilmington Board of Health.

3. On August 26, 1938, a special call to the members of the House of Delegates of the American Medical Association was issued to consider the National Health Program, submitted previously to the National Health Conference held in Washington.

In order that the delegate from Delaware might be definitely instructed before attending this special meeting, a special meeting of the House of Delegates of the Medical Society of Delaware was called. An invitation to attend this meeting was also issued to every member of the State Society. This meeting was held Friday, September 2, 1938, and a copy of the minutes will be filed by the Secretary.

At this session the House of Delegates went on record as wishing no fundamental change in the present status of organized medicine. It did, however, take cognizance of the fact that there is a portion of society which is receiving inadequate medical care and that in view of this the Medical Society of Delaware is ready to take part in any plan which will improve medical care to the inadequately cared for portion of the populace, provided, of course, that the plan is acceptable to its constituent county societies.

4. During the latter part of 1937, the Secretary attended the Annual Conference of Secretaries and Editors, taking the place of the retiring Secretary, Dr. William H. Speer, at this time.

The Secretary also attended as an observer the special session of the House of Delegates held in Chicago, September 16, 1938. The action taken at this special session is, of course, familiar to all who read the *Journal of the American Medical Association*.

5. During August of the past year, a subpoena was received by the Secretary which listed one Dinshah P. Ghadiali as Complainant with the Delaware State Medical Society, the State of Delaware, and the Police Department of Wilmington listed as respondents. A special meeting of the Councilors of the Medical Society of Delaware was called but was poorly attended.

After corresponding with the Attorney General, assurance was received on August 30 that an appearance had been filed by Ennalls E. Berl, Esquire, a Wilmington attorney, and that a motion to dismiss the cause of action because of lack of jurisdiction had also been filed. Assurance was given that the whole matter would be taken care of satisfactorily.

6. In July, 1938, a plan was submitted to the Secretary of the Kent County Medical Society by the Farm Security Administration Board whereby medical services could be obtained by the farm clients of the Farm Security Administration under a group medical pre-payment plan.

On August 13, a special meeting of the State Committee on Medical Economics was called to discuss this plan. The meeting, however, was poorly attended and no reaction concerning the plan was obtained. It may be added that Kent County Medical Society has at this writing appointed a committee to revise the plan for submission to the Society.

7. During the year the routine correspondence has been carried on without delay, and letters have been answered as far as possible so that a reply would be sent out by return mail.

8. The Secretary wishes to report that at this time there are two hundred and fifteen (215) members in the Society, there being one hundred and fifty-five (155) from New Castle County, thirty (30) from Kent, and thirty (30) from Sussex.

In closing, the Secretary wishes to make a few recommendations. First, it is recommended that a special committee be appointed to revise the By-Laws of the Society and bring them up to date and have them re-printed.

Secondly, it is recommended that a definite sum of money be allotted annually to the Secretary to cover stenographic services in connection with the office.

Thirdly, it is recommended that suitable Amendments to the By-Laws of the Society be made so that the office of Secretary and Editor could be combined with the result of saving in correspondence and stenographic services.

Respectfully submitted,

A. V. GILLILAND.

DR. MCELFRATRICK: You don't mention how much should be allowed for the Secretary?

SECRETARY GILLILAND: No amount was specified.

DR. LA RUE: I move the report be accepted. ...The motion was seconded by Dr. Niles, put to a vote, and carried...

PRESIDENT PRICKETT: The next order of business is the report of the Treasurer, Dr. Heck.

...Dr. Heck presented his prepared report as Treasurer:

Report of the Treasurer	
GENERAL FUND	
October 11, 1937, Balance forwarded ..	\$ 524.49
<i>Receipts</i>	
Dues, New Castle County (146)	\$730.00
Dues, Kent County (30)	150.00
Dues, Sussex County (31)	155.00
Dividends: Bank Stock	84.00
Total	\$1,119.00
Total	\$1,643.49

DISBURSEMENTS

Subscription to Journal	\$114.00
Medical Defense Fund	207.00
Annual Session	169.62
Medical Stenography	148.67
Flowers	7.50
Secretary's Expenses (Dr. Speer, \$53.16—Dr. Gilliland \$18.00)	71.16
A. M. A. Directory	15.00
Expenses A. M. A. Delegate ..	150.00
Printing and Postage	32.75
Badges—1938 Session	18.12

Total \$1,233.82

October 11, 1938—Balance on hand.... \$ 409.67

DEFENSE FUND

October 11, 1937—Balance on hand ... \$4,254.78

RECEIPTS

Dues, per capita	\$207.00
Interest on Deposits	147.95

\$354.95

October 11, 1938—Balance on hand ... \$4,609.73

Respectfully submitted,
A. L. HECK

DR. MCELFRATRICK: I move the report be accepted.

PRESIDENT PRICKETT: We have every confidence in the world in Dr. Heck, but it is not customary to receive the Treasurer's report until it has been audited.

The next order of business is the report of the Councilors. Dr. Niles.

Report of the Councilors

DR. NILES: The Councilors had one meeting called, but it was of no avail, as the report from the President stated that the business in hand would be taken care of by the attorney or other members in authority along that line. Outside of that, we have not been called on to act during the year.

PRESIDENT PRICKETT: The Councilors of the Society are Drs. J. D. Niles, New Castle County; William Marshall, Kent County; and Richard Beebe, Sussex County. You will please now retire and act as the Finance Committee, in accordance with the By-Laws, and audit the books of the Treasurer.

Next is the Reports of Standing Committees, the first of which is the Committee on Scientific Work, Dr. Speer.

Report of the Committee on Scientific Work

DR. SPEER: I don't have any prepared report. I called one meeting of the Committee on Scientific Work in Smyrna some time in May, at which the President, the Secretary, and myself were present.

The Secretary and the President had gone along and made a tentative program which looked very good, as far as I was concerned. From that time on, I had nothing to do with the program in an active manner. But I think the program is very, very acceptable, and anything further in the way of a report for this Committee will have to be given by Dr. Gilliland, who was a member of it.

PRESIDENT PRICKETT: Thank you, Dr. Speer. What is your pleasure on the report, gentlemen?

DR. SMITH: I move it be accepted.

...The motion was seconded by Dr. Mullin, put to a vote, and carried...

DR. BUTLER: Mr. President, I believe there are some delegates here now who arrived late. I think they should be recognized by the Chair.

PRESIDENT PRICKETT: Will the delegates who arrived since the roll call please arise, so we can see them?

...The following additional delegates from New Castle County responded:

Dr. Margaret I. Handy, Dr. I. L. Chipman, Dr. A. L. Heck, Dr. Roger Murray.

PRESIDENT PRICKETT: New Castle County already has twelve delegates. There are three more delegates allowed, to make up the total number of fifteen delegates to which they are entitled.

PRESIDENT PRICKETT: We had seated two delegates from Kent County, including an alternate. Have any others come in from that county?

...Dr. John Baker recorded himself as present...

PRESIDENT PRICKETT: Kent County is entitled to three delegates, so Dr. Baker will be seated as a delegate.

Have any additional delegates come in from Sussex County? (No response)

We have sixteen delegates and alternates present now from New Castle. Twelve have already been seated. The alternates who responded to the roll call earlier, I will rule, will remain seated as delegates. The County is entitled to three more and the first three who answer to their names will be seated.

...Drs. Chipman, Handy and Heck were thereupon seated as delegates...

PRESIDENT PRICKETT: That completes the list of seated delegates—fifteen.

The next report is that of the Committee on Public Policy and Legislation.

Report of the Committee on Public Policy and Legislation

Mr. President and Members of the House of Delegates:

Nothing of importance has come up this year before your Committee on Public Policy and Legislation because, as you know, this is an off legislative year. We have in no way attempted to change the present Medical Practice Act because we feel that as it stands it is one of the best in the country and all that is necessary is to enforce the provisions of the act in order to prevent infringement.

There is a very serious problem confronting the medical practitioners of the nation at the present time and this Society as a part of the American Medical Association should be deeply concerned with it. It is the problem of taking care of the indigent sick.

As you all know, the American Medical Association is taking the first steps toward solving this problem. The survey which the American Medical Association is now making will be of great help in presenting a picture of the medical needs of the entire country. It is up to every physician in this Society to cooperate in that survey by answering and returning promptly all questionnaires sent him. After this survey is completed it will be possible for the Medical Society of Delaware to have enough information to be able to formulate a workable plan for the care of the indigent sick, if there is an indication that there is a need for such a plan.

The Committee does not feel that the time will be ripe to formulate any plan until after the re-

sults of this survey have been made available. At such time it is felt that the various county societies can formulate plans which will be suitable for their particular locality. These plans must, of course, be acceptable to the Medical Society of Delaware as well as the American Medical Association. This Committee wishes to go on record as believing that the American Medical Association is very willing to assist in any way it can the formation of suitable plans throughout the country provided that such plans do not destroy the relationship between patient and physician and provided also that politics do not enter into the control of any proposed plan.

Last year the Chairman of your Committee on Public Policy and Legislation recommended that someone should be at the Legislature each session to watch legislation as it is put through and to see whether any of this legislation is going to directly affect the medical profession. Because this was not a legislature year, nothing of this sort was done by your present Committee. This Committee feels, however, that some such plan should be worked out for the year 1939. If any member of the Legislature happens to be a physician who is a member of the Medical Society of Delaware, it is felt that that individual should be on the Committee on Public Policy and Legislation. Moreover, the other members of that Committee should also be very active and alert in watching the activities of the Legislature. All proposed bills in any way connected with medical practice in this state should be carefully scrutinized, and it would be desirable if they could also be studied by a lawyer employed by the Medical Society in order to determine whether anything undesirable is being incorporated in these bills. The suggestion has been made that it may be worth while for the Medical Society of Delaware to engage someone to look after its interests during the next session of the Legislature, and your Committee offers this suggestion for discussion by the House of Delegates.

In closing, your Committee wishes to urge the members of the Medical Society of Delaware to present a united front on questions of Public Policy and Legislation. It is very easy for a divided house to fall, and with a united membership marching forward toward a common goal radicalism, socialism, and any other ism will gain but little foothold in the ranks of organized medicine.

Respectfully submitted,
 C. V. GILLILAND
 J. S. MCDANIEL
 LEWIS BOOKER

The next order of business is the report of the Committee on Publication, a standing committee. . . . Dr. Bird presented the report of the Committee on Publication. . .

Report of the Committee on Publication

As heretofore, we transmit herewith the report of the Publication Committee in two sections, (1) that of the Editor; and (2) that of the Business Manager.

REPORT OF THE EDITOR

With the December issue of this year we will be completing the tenth volume of the New Series. The number of pages of text this year shows a slight increase (14) over last year. It is our feeling that the scientific standards of THE JOURNAL are being maintained at as high a level as is possible in a magazine the size of ours. Our

material comes primarily from the meetings of the State and County Societies, and as their programs improve so will the contents of THE JOURNAL improve. Contributed articles are coming in in greater number than in the past, which is a good sign, and we hope this may continue.

The Committee and the printers have worked together most harmoniously, and to the latter we extend our sincere appreciations.

The Editor, now completing his twenty-third year of service, extends to all our members his most grateful thanks for their cooperation, and expresses the hope that this may continue.

Respectfully submitted.

W. EDWIN BIRD

REPORT OF THE BUSINESS MANAGER
 (October 11, 1937 to October 11, 1938)

Savings Account, Oct. 11, 1937, Wilmington Trust Co.	\$5,274.89
Checking Account, Oct. 11, 1937, Wilmington Trust Co.	229.87
Total	\$5,504.76

Receipts

Advertisements	\$2,734.19
Bonus on advertisements from American Medical Assn.	182.00
Subscriptions, Medical Society members	414.00
Subscriptions, others	32.00
Total receipts	\$3,362.19

DISBURSEMENTS

Printing and mailing Journals	\$2,192.45
Miscellaneous Postage	17.00
Salary of Editor	580.00
Salary of stenographer	144.00
Notary fees	1.50
Binding Journals	9.00
Copyrighting Journals	24.00
Stationery and stamped envelopes	82.68
Miscellaneous office expense..	1.88
Office supplies	2.60
Miscellaneous cuts	13.13
Total disbursements	\$3,068.24

Operating balance	§ 293.95
Interest on savings account..	131.88
Total	\$ 425.83

Total, October 11, 1938	\$5,930.59
Savings Account, Wil. Trust Co., Oct. 11, 1938	5,706.77
Checking account, Wil. Trust Co., Oct. 11, 1938	223.82
Total balance	\$5,930.59

(Still due from advertisements, approximately \$200.00)

SUMMARY FOR NINE YEARS, 10 MONTHS
(January, 1929 to October 11, 1938)

<i>Receipts</i>	
Advertisements	\$23,086.68
Subscriptions, Medical Society members	3,652.00
Subscriptions, others	327.00
Bonus on ads from American Med. Assn.	1,102.33
Single copy sales	14.02
Rebates on cuts	78.53
Refund from N. R. A.	2.34
	\$28,262.90
Interest on Savings Acct. ...	909.60
	\$29,172.50
	\$29,172.50

DISBURSEMENTS

Printing and mailing	
Journal	\$19,034.75
Miscellaneous postage	107.80
Stationery and envelopes ..	470.31
Notary fees	11.25
Stenographic services	815.86
Membership, Editors' Assn.	141.00
Membership, N. R. A.	10.00
Reprints	20.30
Salary of Editor	1,820.00
Binding Journals	63.00
Tax on checks	1.90
Convention expenses	198.66
Editorial expenses	37.00
Repairing cuts	6.12
Cuts	175.65
Editors' convention	134.92
Copyrighting Journals	66.00
Miscellaneous printing	92.11
Miscellaneous office supplies	6.40
Attorney fees	10.00
File cabinet	17.00
Miscellaneous office expense	1.88
	\$23,241.91
	23,241.91
	\$ 5,930.59

In submitting this report to the Honorable Body of the House of Delegates, may I state that it has been a serious task to keep our old advertisers (particularly since we increased our advertising rates to conform with the Co-operative Medical Advertising Bureau of the American Medical Association), and obtain new advertising clients. So far, we have been able to maintain our former motto, to live within our budget, and possibly to increase our savings account. This year we have \$425.83 actual profit from our Journal. This amount can be increased, if the members of the Society will cooperate with the Business Manager's program, and attempt to pay more attention to national as well as local advertisers, by dealing with them. We have been requested by the Medical Advertising Bureau to encourage our readers to fill in coupons, which will be appreciated, and which will pay us good dividends.

May I also inform your body that this concludes almost ten years' experience with the managing of the Journal's finances, and I hope that in the next ten years will be able to do as well as we have done in the past.

Respectfully submitted,
M. A. TARUMIANZ.

DR. LA RUE: I move you, Mr. President, that we accept the report with thanks.

...The motion was seconded by Dr. McElfarick...

PRESIDENT PRICKETT: It is moved and seconded that the report of the Committee be accepted with thanks. All those in favor say "Aye"; opposed. It is so ordered.

The next order of business is the standing Committee on Medical Education. Dr. Strikol is the Chairman of that Committee. Does Dr. Chipman and Dr. Hocker, the other members of that Committee, either of them have a report to make? (No response)

The next report is that of the standing Committee on Hospitals, of which Dr. Munson is Chairman. Dr. Wilson, will you report for that Committee?

...Dr. Wilson then concluded the report of the Committee as follows:

Report of the Committee on Hospitals

The Committee on Hospitals of this Society inspected the hospitals of the State September 16 and 21, 1938. The general management, medical, surgical and nursing staffs, care of patients, and condition of the various buildings and equipment was in general found to be good, and it is felt that each hospital is striving for improvement and is looking forward. The amount of laboratory work, the quality of the records kept, and the percentage of the autopsies performed in relation to the number of deaths were with few exceptions found to be satisfactory. There are not enough beds in the State Hospitals for the indigent, for the insane, and for the colored tuberculous patients. In the general hospitals, the daily census in relation to the total number of beds seems to show that there are enough beds available. However, since in all these general hospitals it is at times impossible to find a ward bed though beds in semi-private rooms are at the time empty, and the reverse, it is felt that in such instances it would be well for the various hospital managements to have a flexible arrangement of these wards and semi-private rooms whereby in case of an overcrowded ward and vacant semi-private rooms, ward patients could be admitted to the vacant semi-private rooms at ward rates, and the reverse.

It is felt that for the good of the hospitals there should be a close communication between the staffs of the hospitals and the governing boards; that in those hospitals whose governing boards do not include in their membership members of the staff, a committee elected by the staff should meet with the governing board.

Very ill indigent patients at times need private nurses. Each hospital management should consider ways and means of taking care of this situation; by assigning a nurse on regular duty to care for that patient alone, by paying for a special nurse, by asking for contributions to a fund to care for such work, or by asking the graduate nurses of the state to volunteer their services. An associated idea is for the hospitals to maintain through subscriptions, a fund for the purchase of blood for those indigent cases from whose friends and relatives suitable blood cannot be obtained.

There follow now notes and recommendations concerning the condition of the individual hospitals:

The Delaware Hospital in Wilmington. Number of beds, 225; number of admissions, 4,781; daily average, 53; number of deaths, 102; number of autopsies, 66 or 27%. The organization and management of this hospital seem good. The

only real need found is an entirely new hospital building, because the present buildings are old, in poor condition and entirely inadequate. It would be a waste of money to remodel or add to the present buildings.

The St. Francis Hospital in Wilmington. Number of beds, 75; number of admissions, 1,652; daily average, 53; number of deaths, 102; number of autopsies, 16 or 15%. With its new building, the hospital represents a fairly complete unit. I believe that any recommendation to be made for this institution should be reserved for a year until it is seen how much the new building will contribute to the efficiency of the hospital.

The Homoeopathic Hospital in Wilmington. Number of beds, 171; number of admissions, 4,355; daily average, 131; number of deaths, 267; number of autopsies, 64 or 27%. The condition of this hospital is good, and its management and organization are excellent. A new building is being completed which gives added new beds, especially for children, and a sun deck and quarters on the roof for the physio-therapy department. The laboratory of the hospital is to be congratulated upon the establishment of a blood bank for transfusions. The operating room seems entirely inadequate, and it is obvious that a new suite of operating rooms is the hospital's next need.

The Wilmington General Hospital in Wilmington. Number of beds, 85; number of admissions, 3,109; daily average, 83; number of deaths, 117; number of autopsies, 28 or 24%. The main hospital is fairly new, in excellent condition, and well planned. A new building for the maternity department has just been completed and is entirely well planned and equipped. This is an open staff hospital, and it is recommended to the Board of Trustees of this hospital that the staff be made a closed one since it is almost always found that this works to the best advantage of the hospital.

The State Insane Hospital at Farnhurst, Delaware. Normal capacity, 850; number of admissions, 350; daily average, 1,150; number of deaths, 103; number of autopsies, 22. There is serious overcrowding in certain wards. This can only be remedied by additional building. However, it is striking to find many of the quarters spacious and with every convenience while in the others a great number of negro patients are crowded together in a dark, unhygienic basement or a great number of white patients are crowded in wards so filled that the beds in lines four deep practically touch each other. It would seem that in any future expansion, the first consideration should be to give room and comfort to those in the overcrowded wards.

The State Welfare Home at Smyrna, Delaware. Number of beds, 375; number of admissions, 133; and 9 re-admissions; daily average number of residents, 363; number of deaths, 98. This institution is modern, well planned, and the inmates are comfortable. It is filled to capacity. Doubtless a new pavilion for colored people and one for white people would soon be filled, if appropriations for the building of these pavilions could be had. Since patients referred to state maintained homes for the indigent are seldom returned to their ordinary walks of life, it is recommended that great care be continued in selecting candidates for admission to such institutions, since otherwise the number of inmates will ever increase in proportion to the general population.

The Kent General Hospital at Dover, Delaware. Number of beds, 54; number of admissions, 1,196; daily average, 30.9; number of deaths, 75; num-

ber of autopsies, 12 or 16%. The service to the patients in this hospital is good, but the building is poorly planned and the work is thereby handicapped. The nurses' quarters are poor, overcrowded, and are not in one unit. A laundry is badly needed. Another floor or wing of ten beds for adults and an adequate children's ward to replace the present dark and crowded room is badly needed.

The Milford Memorial Hospital at Milford, Delaware. Number of beds, 100; number of admissions since April 1938, 905; daily average, 53; number of deaths, 53; number of autopsies, 3 or 6%. This hospital building is new and well planned. The chief objection as to the work is the poor condition of the records. A new nurses' home is needed. The old nurses' quarters are inadequate and are far from the hospital. A house physician has just been engaged.

The Beebe Hospital at Lewes, Delaware. Number of beds, 96; number of admissions, 978; daily average, 31; number of deaths, 61; number of autopsies 5 or 8%. The hospital is well staffed, and is rendering good service. It is felt that adequate laundry machinery would obviate any of the laundry being done by private contract and would be a paying proposition. A new addition, well planned and equipped, has recently been opened. However, this was done when the daily census was below the previous bed capacity. It would seem that a rearrangement of the old building and modernization of such equipment as the x-ray room would have been money well spent.

The Brandywine Sanatorium at Marshallton, Delaware. Number of beds, 160; number of admissions, 86; daily census, 139.7; number of deaths, 23; number of autopsies, 2 or 8%. As is well known, the work at Brandywine is excellent and the results in returning patients to useful life good. The accommodations for patients are nearly adequate so that the children's building has some empty beds at all times, that a white woman applicant for admission has to wait only four or five days, and a white man only two weeks before admission. The accommodations for the care of the white tuberculous patient in Delaware compare favorably with those in any state in the union.

The Edgewood Sanatorium at Marshallton, Delaware. This institution for the care of the tuberculous negro is under excellent management and the quality of work done is high. However, in a building designed to accommodate twenty patients, there are thirty-five beds, which are filled practically all the time. The result is that a candidate for admission is on the waiting list from four to five months and, therefore, if he enters the hospital at all, is in a great percentage of the cases a person who has been subjected to the ravages of the disease too long for a hope of cure. Because of these conditions, it is obvious that a great percentage of the tuberculous negroes of the state are at large with resulting danger to all with whom they come in contact, whether in their own homes or in the homes of others. It is the opinion of this committee that no more important action could be taken by this society than to recommend and urge to the Legislature that adequate funds be appropriated to Edgewood Sanatorium in order to give proper care for the negroes of the state who are suffering from tuberculosis.

Respectfully submitted,

L. C. MUNSON

PRESIDENT PRICKETT: You have heard the report of the Committee on Hospitals. What is your pleasure, gentlemen?

DR. BIRD: I move it be accepted.

...The motion was seconded by Dr. Smith, put to a vote, and carried...

PRESIDENT PRICKETT: The next report is that of the Committee on Necrology, Dr. G. W. K. Forrest.

Report of the Committee on Necrology

DR. FORREST: Mr. President, our Committee has not had a meeting, and I am pretty sure every member of the Committee here would agree with me that it would be unnecessary for us to take any formal action tonight, inasmuch as appropriate Resolutions have been adopted by the various county societies and such resolutions have been presented to the families of the deceased members and published in the State Medical Journal.

The only motion I would make at this moment would be that we stand for a moment in silence in memory of our three departed brothers. I will give you their names:

Dr. W. T. Jones, Laurel, who died October 22, 1937, shortly after our last session;

Dr. J. L. France, Wilmington, who died March 14, 1938; and

Dr. Charles P. White, Wilmington, who died April 13, 1938.

...The members arose and stood in silence for one minute...

PRESIDENT PRICKETT: We will pass on to the next order of business, which is Reports of Special Committees, the first of which is Women's Auxiliary. The Chairman of that Committee is Dr. T. E. Davies. Also on the Committee is Dr. Margaret I. Handy. Do you have anything to report, Dr. Handy?

DR. HANDY: No report.

PRESIDENT PRICKETT: Thank you.

Next is the Special Committee on Cancer. The Chairman of that Committee is Dr. Ira Burns.

...Dr. Burns presented the report of this Committee, as follows:

Report of the Committee on Cancer

The Committee on Cancer of the Medical Society of Delaware desires to report that it has cooperated with the Delaware Committee of the American Society for the Control of Cancer in a conjoined activity in which there has been mailed, to every practicing physician in the state, a manual on cancer.

This manual is complimentary and the expense of it has been borne by the Delaware Committee of the Society for the Control of Cancer.

Its use by physicians, particularly by those seeing but few cancer cases each year, will serve one very valuable means of effectively recognizing early cases of the disease in every organ of the body, your committee feels.

This activity has the unanimous approval of your Committee on Cancer.

Respectively submitted.

IRA BURNS.

PRESIDENT PRICKETT: Gentlemen, what is your pleasure with respect to this report?

DR. BIRD: I move the report be accepted.

...The motion was seconded by Dr. Smith, put to a vote, and carried...

PRESIDENT PRICKETT: I will now call for the report of the Auditing Committee.

Report of the Auditing Committee

DR. NILES: After examining the books of the Treasurer we find with the exception of two checks—one dated October 15, Number 414, and one dated October 5, Number 213, each for \$207, which have not come in yet—the books are in perfect order and we recommend them to be approved. The two checks to which I have referred were written to the Delaware State Journal and the checks have not yet been returned.

PRESIDENT PRICKETT: I will entertain a motion to accept the report.

DR. SMITH: I so move.

...The motion was seconded by Dr. Tomlinson put to a vote, and carried...

PRESIDENT PRICKETT: The next order of business is the report of the Committee on Syphilis, Dr. I. L. Chipman, Chairman.

...Dr. Chipman presented the prepared report of the Committee, as follows:

Report of the Committee on Syphilis

This Committee had a meeting in September, at which time the work being done by the State Board of Health in the control of syphilis was discussed. The Committee feels that a rather good program has been developed and is being carried out in Delaware, it appreciates the work the personnel of the State Board of Health is doing.

Many of the recommendations made by this Committee last year have been carried out.

There were 2,820 new cases of syphilis reported to the U. S. P. H. S. in the year 1937-1938 by the State Board of Health, an increase of 850 cases or 43% over the previous year. There were 20,482 treatments administered during the same period by Hospital and State Board Clinics, an increase of 9,367 or 84.3%.

New clinics were opened at Newark and Frankford and a colored clinic in Wilmington. The City Board of Health through City Council, will supply space for the latter clinic. It should be staffed and operated by the colored physicians of Wilmington and not by the State Board of Health. At present the clinic is held at 910 French street.

Free arsenicals and bismuth continue to be furnished physicians for the treatment of syphilis on request, provided the case is reported to the State Board of Health.

Manuals on the treatment of syphilis, published by the U. S. P. H. S., were purchased by the Board of Health and distributed to those physicians of the state who had sent blood specimens to the state laboratory for serodiagnostic tests during the past year.

A survey of the syphilis control work in the state was made by Dr. O. C. Wenger of the United States Public Health Service in June 1938. His report was quite commendatory.

Illustrated lectures and talks on syphilis were given to interested groups throughout the year. In December the Delaware Academy of Medicine sponsored a venereal disease week during which three evening meetings were held at the Academy, one for physicians, one for nurses and social workers, and one for the general public.

A syphilis follow-up nurse is now on duty in each county and there are two additional for Wilmington.

Free laboratory service for serodiagnostic tests, that is, the Kahn and Kolmer Wassermann tests continue to be available to physicians at the State Board laboratory. Immediate and deferred dark-field examinations are made at the Wilmington City Board of Health laboratory, as well as at

the state laboratory. Containers for holding material for the deferred examinations may be had by any physician upon request.

The Committee wishes to remind physicians that the time to treat infectious syphilis is just as soon as the diagnosis is made and confirmed by a darkfield or serodiagnostic test, and that the arsphenamines are the only drugs which should be used to control infectiousness; bismuth or mercury to be used as an adjunct after infectiousness is controlled.

The recommendations of the Committee for improving the syphilis control program in Delaware are as follows:

1. A new form for the reporting of syphilis by physicians should be devised by the State Board. Physicians should use the new form, and not expect statistics to be taken from laboratory reports.

2. All laboratories performing serodiagnostic tests for syphilis should be checked with the State Board of Health laboratory, as a control laboratory at regular intervals. The results of such control tests to be entirely confidential.

3. Recommends for legislation, that prenatal serodiagnostic tests be compulsory on all pregnant women, the earlier the test is taken in pregnancy the better.

4. The Committee does not go on record as being opposed to legislation compelling premarital serodiagnostic tests, but in view of pending investigation as to the practicability of such tests feels legislation should be postponed.

5. Recommend that no other syphilis clinics shall be completed during the coming year beyond those already projected or in process of construction.

Respectfully submitted,
I. L. CHIPMAN.

PRESIDENT PRICKETT: What is your pleasure with Dr. Chipman's report?

DR. BIRD: I move the report be accepted.
...The motion was duly seconded...

DR. HUDSON: I should like to say a word before that motion is put to a vote, if I may.

As far as the number of clinics in the state is concerned, I think at the present time the State Board of Health Clinics throughout the counties and the clinics in Wilmington are just about able to take care of the work. There are I think at the present time three proposed clinics which are not in existence. If those are established, as far as I know, one will be at Milford. One has been worked on for a long time at Middletown but it hasn't been established as yet, I don't believe. And there is a possibility of one being established at Lewes.

If there are any objections to those, I would like to hear from the men present.

DR. CHIPMAN: Doctor, I think that was covered in the last paragraph which says that any projected clinics in the making for this coming year were satisfactory.

PRESIDENT PRICKETT: Is there any other discussion? If not, all those in favor of accepting the report say, "Aye"; opposed, "No." It is so ordered.

Next is the report of the special Committee on Tuberculosis. Dr. Meredith I. Samuel.

...Dr. Samuel presented the report of the Committee, as follows:

Report of Committee on Tuberculosis

Your Committee regrets to have to report to you that the 1937 tuberculosis mortality rate in

Delaware showed a slight increase over 1936. In 1936, 125 citizens died in Delaware and, in 1937, 142. As in the past, the negro rate was more than four times higher than the white rate. Our white rate of 36.1 per 100,000 population compares very favorably with the national rate, but the negro rate of 157.4 is distressingly large. Delaware had but 88 deaths from tuberculosis last year among the white people, and 54 deaths among negroes, although they constitute less than one-fifth of the total population of the state.

A brief summary of the many activities carried on during the year by the various agencies of prevention and control follows:

DELAWARE STATE BOARD OF HEALTH

BRANDYWINE SANATORIUM—Dr. L. D. Phillips, Superintendent of Brandywine Sanatorium, makes the following summary:

Total No. of Patient Days	51,059
Average Daily Census	139.73
Average Length of Stay (Non-Tuberculosis Cases Excluded)	511.8
Longest Stay	2,519 Days
Shortest Stay	1 Day
No. of Patients Admitted During the Year (July 1, 1937 to July 1, 1938)	86
No. Patients on Waiting List July 1, 1938 ..	16
No. Patients Remaining June 30, 1938	140

Under the heading of *Operative Procedures* were the following:

<i>Artificial Pneumothoraces:</i>	
No. Patients Treated	115
No. Treatments Given	3,252
<i>Thoracenteses:</i>	
No. Patients Treated	28
No. Treatments Given	257
<i>Pneumo-Peritoneum:</i>	
No. Patients Treated	4
No. Treatments Given	44

CHEST CLINICS—At the Chest Clinics maintained by the State Board of Health, a total of 1,626 examinations were made; 226 classed as inactive, 130 as active and 851 as contacts.

EDGEWOOD SANATORIUM—Dr. Conwell Banton, Medical Director of Edgewood Sanatorium, reports the following:

No. Patients on Waiting List	25
No. Refused Admission	10
No. Admitted	28
No. Doing Well at Home	1
No. who <i>Died Before Admission</i>	11
No. Unable to Locate	2
No. Patients Remaining	36
No. Patients Discharged	19
No. Patients Died	16
Total Number Patient Days	1,064
Average Daily Census	30
Shortest Stay	Days 4
Longest Stay	Days 2.341

PUBLIC HEALTH NURSING—Mrs. Kathryn Trent, Director of Public Health Nursing of the State Board of Health, states that "during the last year there has been a definite movement forward in the field of tuberculin testing in that emphasis has been placed on the older age group and included the Delaware State College for Colored Students and the University of Delaware.

"There has been no decrease in the attendance in clinics throughout the state and, in some cases, there have been definite increases. Supervision of cases forced to remain in their homes has been carried on as effectively as possible. Many negro patients remain in their homes because of inadequate facilities for caring for

them in our sanatorium. We are of the opinion that the nurses are attempting to discover symptoms of early cases of tuberculosis in all their home contacts.

"The program of education has been enlarged through the distribution of educational material, films and talks to lay and school groups. The extension of the library for the nursing service has been made possible through the assistance of the Anti-Tuberculosis Society."

VISITING NURSE ASSOCIATION—Mrs. Anna Van W. Castle, Director, states: "The Wilmington Visiting Nurse Association plays a part in the program of the Delaware Anti-Tuberculosis Society by giving bedside care to the actively ill tuberculosis patients in the territory covered by the Visiting Nurses."

For the year 1937, Mrs. Castle reports:	
No. of Cases Carried from 1936	14
No. of Cases Admitted in 1937	53
No. of Cases Discharged in 1937	59
No. of Cases Carried to 1938	8
Visits to Discharged Patients	1,514
No. of Colored Cases	8
No. of White Cases	51

DELAWARE ANTI-TUBERCULOSIS SOCIETY—In addition to the cooperative nursing project already referred to, the Society cooperates with the State Board of Health in the tuberculin testing and x-raying of school children. The record for this work from July 1, 1937 to July 1, 1938 is as follows:

Total Number Tested	2,233
Positive Reactors	968
Negative	1,265
X-ray of Contacts	121
Contacts Positive	54
Contacts Negative	67
X-ray Non-Contacts	621
Non-contacts Positive	150
Non-contacts Negative	471
Percentage Non-contacts Positive	24
Percentage Contacts Positive	43

The Society continued its health education program in cooperation with the State Department of Public Instruction and, during the year, its "Health Habit" project was used by 336 school-rooms, with nearly 10,000 pupils enrolled. More than 100,000 pieces of informative literature were distributed, with 133 talks, conferences and dramatizations.

SUNNYBROOK COTTAGE—The Society's preventorium, during the past fiscal year, afforded preventorium care for 30 children. Patient days numbered 6,841, total school days were 4,491, and the approximate cost per diem was \$1.50.

In closing, I wish to stress that one of the crying needs in Delaware today is more adequate care for colored tuberculosis patients. This need has been discussed for a number of years by our own Medical Society, the State Board of Health and the Delaware Anti-Tuberculosis Society. The Society has prepared a Resolution which reads as follows:

Whereas, Information compiled by the Delaware State Board of Health and the Delaware Anti-Tuberculosis Society substantiates again the wholly inadequate provisions for the care of colored tuberculous patients at Edgewood Sanatorium, and

Whereas, With a waiting list of twenty-five patients, necessitating often more than a year after diagnosis before care may be given, and

Whereas, During this year eleven colored tuberculosis patients have died before admission, and

Whereas, The colored tuberculosis death rate in Delaware is more than three times higher than the white rate, and

Whereas, Every case of tuberculosis comes from another case, and no home is safe until all homes are safe, be it now

Resolved, That the Medical Society of Delaware urgently request the next legislature in Delaware to provide for additional sanatorium facilities for the care of colored tuberculous patients in Delaware.

Respectfully submitted,
MEREDITH I. SAMUEL.

DR. SAMUEL: The Delaware Anti-Tuberculosis Society wish our Society to be the first to adopt this resolution. They intend to send it to different civic bodies and other organizations throughout the state, but they have held back until I presented it tonight, so that it could be passed first by our Society.

Mr. President, I respectfully submit my report and move adoption of the resolution.

DR. FORREST: Mr. President, I think it would be well if in the "whereases" of that resolution there was reference made to the report of the Committee on Hospitals, who made a similar report as to the mortality rate being so much greater among the negroes than it is among the whites. Isn't that right, Dr. Wilson?

DR. WILSON: I think so.

DR. FORREST: I think that should be put in your resolution, too. We should as a society go on record as saying we have inspected the hospital and find that condition to exist. That was reported by Dr. Wilson, you will remember.

DR. SAMUEL: I will be very glad to accept that suggestion.

DR. FORREST: Will you accept that addition?

DR. SAMUEL: Yes, positively.

PRESIDENT PRICKETT: A motion was made by Dr. Samuel for acceptance of the resolution, including Dr. Forrest's amendment.

DR. FORREST: That particular clause in Dr. Wilson's report pertaining to the Sanitarium.

PRESIDENT PRICKETT: All those in favor of the resolution say, "Aye"; opposed, "No." The motion is carried and the resolution is adopted.

Now, what is your pleasure with respect to Dr. Samuel's report?

DR. BIRD: I move its acceptance.

...The motion was duly seconded, put to a vote and carried...

PRESIDENT PRICKETT: Next is the report of the special Committee on Medical Economics, Dr. Bird.

...Dr. Bird presented the report of the Committee on Medical Economics, as follows:

Report of the Committee on Medical Economics

The Committee on Medical Economics has had placed within its hands the responsibility of conducting within this state the survey of the facilities and the availability of medical care which the American Medical Association has requested of all the states. The keynote of this survey is the report by the individual practitioner, to be made on Forms 1 and 1F. To date, approximately one-half of these forms have been returned to the Committee.

The importance of this survey, difficult though it may be to attain to something like real accur-

acy, was made doubly apparent at the special session of the House of Delegates of the A. M. A. last month, when it was shown that this survey must do two things: (1) refute what we are convinced are inaccurate figures in the Federal program; and (2) provide a basis for proper counter-proposals to the Federal program. These objectives are fundamental to the preservation of the best interests of the profession and of the public, and so we urge all who have not already done so, to return their forms properly executed, as promptly as possible.

The Committee yet has to correlate all the data returned, and should make its report to the A. M. A. headquarters in ample time for them to prepare their program in advance of the convening of Congress next January.

Respectfully submitted.

W. EDWIN BIRD.

PRESIDENT PRICKETT: What is your pleasure, gentlemen, with that report?

DR. SMITH: I move the report be accepted.

...The motion was duly seconded, put to a vote, and carried...

PRESIDENT PRICKETT: Next is the report of the Committee on Criminologic Institutes. Dr. Elfeld is Chairman of that Committee. The Secretary will read that report.

...Secretary Gilliland read the report of the Committee, as follows:

Report of the Committee on Criminology

The Committee of Criminology feels that due to the fact that the criminal problem is not hampered by major crimes, but by minor crimes, and that the minor crimes are frequently caused by slight deviations from the normal, mentally, and adverse social situations, that it is the duty of the physicians to cooperate with the legal profession to solve problems as they arise. This can be done only by affording every individual the maximum opportunities commensurate with his mental and physical ability and that each individual's mental and physical ability should be developed to the utmost. Such can only be done by close cooperation between the educational system and organized social workers.

Though the Committee has not been active, it feels that definite forward steps have been made by the various agencies in solving the problem, but still feels that physicians must continue increasing their interest in the individual's adjustment to prevent crime.

It is felt that an important problem in our state is the sale of sedatives and non-restricted narcotics without a prescription of a physician. The Committee wishes to recommend that the Medical Society present a bill to the Legislature preventing such sales. Since this state has no institution for the care of drug addicts, the problem is a serious one for those who have become victims, since imprisonment is the only means available at present, and this does not cover addiction to the above mentioned drugs.

P. F. ELFELD.

PRESIDENT PRICKETT: What is your pleasure, gentlemen, with that report?

DR. TOMLINSON: I move the report be accepted.

...The motion was seconded by Dr. Smith, put to a vote, and carried...

PRESIDENT PRICKETT: Next is the report of the Committee on Mental Health, Dr. Tarumianz, Chairman.

...Dr. Tarumianz presented the report as follows:

Report of the Committee on Mental Health

The housing conditions of the Delaware State Hospital have seriously handicapped the proper care and treatment of those who have been entrusted to the hospital by the people of the State of Delaware.

It is impossible to conceive that one can achieve successful results in the treatment of the individual, when the vast majority of the individuals, are cramped and packed together to an extent that the mere existence becomes burdensome.

All of the old buildings of the hospital are so overcrowded that every available space, even corridors, day rooms and basements are filled with beds. It is true that the new buildings as well as the receiving wards have adequate space, but unfortunately they accommodate less than one-third of the population.

Recently the hospital completed the repairs and remodeling of the north and west wings of New Castle Building. Funds for this work were appropriated by the last Legislature. The wings have been properly equipped and will be ready to receive patients in the very near future.

On October 10th the hospital was in actuality short of space for over 200 beds. Considering the fact that they have an increase in population of about 50 every year and the fact that at the present time about 100 white and colored patients occupy rooms in the basements, it is obvious that the hospital will need space for 350 beds by the end of 1939.

There is but one method to approach this question of mental disease since it certainly is on a rampage in our midst. Surely we read enough concerning the United States Public Health Service and its accomplishments, in the last quarter of a century in regard to physical health and preventive medicine. Unless people have the same attitude toward mental and nervous diseases as they do toward the physical, we are afraid that in the next quarter of a century the population of the hospital will reach the peak of 2600. The time has come when the people of the state must be told by the physicians, that there are but two ways to cope with this situation, preventive psychiatric work, through education as well as guiding our children, and adolescent, and inadequately prepared adults, and adequate care and treatment of all acutely mentally and nervously ill individuals in the state.

For the reasons above mentioned the hospital authorities will request the Legislature to consider an adequate building program in the near future.

In this program the hospital authorities will include a complete negro unit which will give the colored patients adequate care and modern psychiatric and medical treatment.

The Committee wishes to call to the attention of the House of Delegates, as well as the Society as a whole, to consider this the business of the medical profession and pass an adequate resolution to assist in the care of mentally ill.

The Committee on Criminologic Institutes, has called the attention of the Medical Society to the existing conditions in regard to the sale of sedatives and other drugs.

This Committee fully approves the thought as presented by the Committee on Criminologic Institutes, and urges the Society to present an adequate bill to protect our people from the undesirable existing conditions.

The care of alcoholics and seniles without psychoses is a serious problem in our state. We feel that the Medical Society of Delaware should attempt to present a bill by which adequate measures can be taken to provide special departments for the care of the above-mentioned individuals, under the jurisdiction of the Delaware State Hospital. Every practicing physician is aware of the fact that there are many alcoholics who are community problems and yet legally they cannot be committed to Delaware State Hospital for care, and it is against all good thinking to commit these individuals to the workhouse and jails.

The physicians are also confronted with the problem of old people who are not psychotic yet they are mentally deteriorated to such an extent that the Welfare Home cannot accept them.

In the past the State Hospital has accommodated all these old people, but in the future unless there is some specific provision made the hospital will be unable to render such service.

These are a few of the many problems of mental health that physicians must consider and tackle every two years when the Legislature meets.

Respectfully submitted,
M. A. TARUMIANZ.

DR. TARUMIANZ: May I add to this, that, to my notion, the care of old people who have a certain amount of deterioration, which is natural, is most acute and perhaps the most important problem in this state?

We come across people nowadays who have a father who is seventy-eight, eighty or eighty-five years of age, with a certain amount of deviation from normal, and there is nowhere to send such a person, nor to obtain proper, comfortable care for such an individual. It is a disgrace when one finds an individual of this type abandoned in some shack, and there is no provision in this state for that individual to be taken care of, because the law specifically says that no individual, regardless of age, who deviates from normalcy can be admitted to the State Welfare Home. Either the law will have to be amended—and that again must be done through the Society's efforts—or you will simply have to have a special department for senile cases without psychosis.

Alcoholics you all know about. I receive calls from practicing physicians every day, and they don't all come from Wilmington, they come mostly from downstate, "We have a man here who is a community problem; what shall we do?"

We cannot send that fellow to jail. We have been sending him there for the last five years but actually nothing is done for him. He stays there for ten days and then he is back again, still a problem.

Dr. Smith can tell you how many cases he has to tackle. He calls me on the telephone and says, "What shall I do? The man is not insane but unquestionably he is a community problem."

This is the time for you to pass such a resolution for your own protection. If you don't take some such action, don't blame me as the executive of a hospital if, in attempting to comply with the state laws, I refuse to assume the responsibility of receiving such a person in our hospital. Nor can you as practicing physicians conscientiously sign a certificate stating that such a person is insane, when you know as a matter of fact that the man is not mentally ill, but is slightly upset emotionally because of his condition.

I urge this House of Delegates to pass a resolution such as it passed a moment ago in regard

to tuberculosis cases. Unquestionably, that is a very urgent problem, but it is no more urgent than these two problems as well as the problem of sale of sedatives to anyone without a prescription.

Two weeks ago I had a girl brought to the hospital who had bought eighteen capsules of three grains of sodium amyral and took them all at once.

Why shouldn't we have the same kind of law that they have in our neighboring states: that no one can purchase sedatives without the prescription of a physician?

If we sit idly by, without passing a resolution on this matter and urging our legislators to take some action, I am sure the Legislature will not be very much concerned because this is our problem primarily as physicians.

I therefore urge that someone offer such a resolution.

Thank you very much.

DR. SMITH: I just want to say that I am certainly in sympathy with Dr. Tarumianz. I have had very close contact with him on this problem. As he said, when we send one of these alcoholics to jail for ten days, at the end of that time he is back and in a couple of weeks he is at it again. It is going on all the time.

As for the sale of drugs, anyone at all can go in and buy sodium amyral, phenobarbitol, and any of the barbiturates, without any trouble.

As far as crowding in this institution is concerned, I guess I am in a position to know about that better than anybody else. I know what kind of trouble we have getting these people in from the police station, especially the alcoholics and the senile cases. Of course, when they had the poorhouse out there they were able to take those cases in the poorhouse that weren't off very much mentally. We can't do that any more, and we can't get them in the Welfare Home. We don't know what to do with them.

SECRETARY GILLILAND: Mr. President, inasmuch as the name of the Welfare Home has come up in the discussion, I might say that cases of the three types that Dr. Tarumianz has referred to have been admitted—I should say treated, because they haven't all been admitted. If we thought they were insane, we had them examined by the Mental Hygiene Clinic. We have treated alcoholics, with fair success. We have had some drug addicts, although I won't claim that we have had much success with them.

But Dr. Tarumianz has raised a very important question. Some action should be taken either to amend the law governing admissions to the Welfare Home or a separate department should be set up in State Hospital to take care of people who are not able to be admitted or handled at the Welfare Home.

I have people in there now who could be classified as insane. As long as they do not create too much disturbance and do not attempt to injure the other patients, I don't try to crowd them off on Dr. Tarumianz. I keep them, even though the law says that no insane patient shall be admitted.

We handle the alcoholics that we can, but the violent alcoholics we are not equipped to handle.

Personally, I should like to see a resolution of the type Dr. Tarumianz has suggested adopted here.

DR. TARUMIANZ: Mr. President, may I suggest it would be much easier if the House of Delegates would approve the report of the Committee on Mental Health and send a copy of that to the

State Legislature, the House of Representatives as well as the Senate?

DR. CHIPMAN: Before that is done, I would like to make a suggestion, Mr. President: that you adopt this report and that the report be turned over to the Legislative Committee of our Society to go over it carefully, leave in what is good and take out what is bad.

PRESIDENT PRICKETT: Do you make that as a motion?

DR. CHIPMAN: I make that as a motion.

...The motion was seconded by Dr. Wilson...

PRESIDENT PRICKETT: You have heard the motion which has been made and properly seconded. Is there any discussion?

DR. FORREST: That particular motion might apply to all these other resolutions we have passed. I think it is a good thought. The Committee on Public Policy and Legislation should be informed and have a full copy of all these resolutions we passed tonight, with respect to legislation, so that they may study those things and be ready to present them to the Legislature at the coming session.

I heartily approve of this resolution. I have had quite a bit of experience with these aged and alcoholic and other cases, plenty of them just on the borderline of insanity, and I know Dr. Tarumianz is on the right track in presenting such a report from the Committee.

DR. CHIPMAN: I will make that motion apply to all resolutions regarding legislation which we have passed here tonight.

PRESIDENT PRICKETT: Does that meet with your approval, Mr. Tarumianz?

DR. TARUMIANZ: I have nothing to say.

DR. CHIPMAN: I move the report be accepted. ...The motion was duly seconded...

PRESIDENT PRICKETT: It is moved and seconded that the report be accepted. All those in favor say, "Aye"; opposed, "No." It is adopted.

DR. TARUMIANZ: Mr. President, acceptance of the report means very little, from my twenty years of experience in this work. It is just another report filed, without even a reminder to the next annual meeting.

A few moments ago you passed a resolution in regard to the negro tuberculosis situation. Isn't it only fair that this House of Delegates should not show partiality between these two important factors which have been presented to you? To be sure, the negro tuberculosis problem is serious, but this is something that applies to whites as well as negroes, and it is something that is of interest to all physicians. Everyone is confronted with that terrible situation of alcoholics and seniles, as well as the sedative problem.

If you could pass a resolution on this other problem, I don't see on what basis you can consider this simply as an accepted proposition without passing an adequate resolution so it will be an active proposition.

PRESIDENT PRICKETT: I thought Dr. Chipman meant to follow that with a resolution.

DR. CHIPMAN: Yes.

DR. BIRD: Mr. President, I believe we have a By-Law in this Society which provides that all resolutions shall be submitted in writing. The subject matter of Dr. Tarumianz's resolution is just as important as that of Dr. Samuel's. If Dr. Tarumianz could quickly prepare a resolution while we go on to some other subject, we can come back to that later and pass his resolution.

PRESIDENT PRICKETT: Dr. Bird is correct.

DR. TARUMIANZ: There is a resolution contained in my report. May I read it?

PRESIDENT PRICKETT: You may, Doctor.

DR. TARUMIANZ: This is the resolution:

Resolution on Mental Health and Sedatives

Whereas, the House of Delegates of the Medical Society of Delaware at its meeting on October 11, 1938, received reports from the Committee on Hospitals, the Committee on Criminologic Institutes, and the Committee on Mental Health, and

Whereas, the House of Delegates agrees that the Delaware State Hospital is seriously handicapped because of improper housing facilities, and

Whereas, the House of Delegates feels that the problem of senile and alcoholic individuals without psychoses is a serious one, and

Whereas, the House of Delegates finds that there is no law in the state prohibiting the sale of sedatives and certain non-restricted narcotics; be it

Resolved, That the Medical Society of Delaware approves an additional building program for the Delaware State Hospital; be it further

Resolved, That the Medical Society of Delaware approves the preparation of a proper bill to present to the next session of the Legislature to provide for the care of senile and alcoholic individuals without psychoses; be it further

Resolved, That the Medical Society of Delaware present a bill prohibiting the sale of sedatives and non-restricted narcotics without a prescription from a physician; and be it further

Resolved, That a copy of this resolution be sent to the members of the Senate and House of Representatives at the next session of the Legislature.

DR. BIRD: I move adoption of that resolution.

...The motion was duly seconded, put to a vote, and carried...

PRESIDENT PRICKETT: Thank you very much, Dr. Tarumianz. That is a very good resolution.

The next report is that of the special Committee on Maternal and Infant Mortality. Dr. Booker!

Report of the Committee on Maternal and Infant Mortality

DR. BOOKER: Before reading this report, I should like to say a few words in explanation of it. When we decided to make this study we received from Dr. Philip Williams, of Philadelphia, a set of forms which they have been using. The Committee thought that those forms were entirely too voluminous for this Committee to undertake to study at the present time. We received then from the Children's Bureau of the Department of Labor a questionnaire, which is a composite of those that have been used by various medical societies.

With each questionnaire submitted to the doctor, we sent this letter:

"Recently, a number of medical societies have undertaken systematic investigations of the maternal deaths in their communities, so as to ascertain means for the avoidance of those which are avoidable. Last fall, the Medical Society of Delaware voted a Committee to this end.

"From the hospital and from state records at Dover, we find that you are likely to be in possession of the facts regarding the death on of at the Hospital. Accordingly, we are enclosing a questionnaire with respect to this death and are asking you to fill it out and return it to me, as Committee chairman.

An envelope is included for this purpose. This information is being obtained for the Medical Society of Delaware, and is in no sense a criticism of your conduct of the case.

"Preliminary findings must be given the Society next month on such deaths as have occurred since July 1, 1937. There is so little time remaining for assembling and considering the data that we will greatly appreciate your returning this within a week.

"We believe that you will save time and error if you read through the entire questionnaire before beginning to fill it out. Clerical work will be simplified if some sort of answer is checked or marked opposite every question. Approximations are requested where exact information is not available.

"Inquiries regarding any topic should be noted on the questionnaire, and submitted with it, together with information which might assist the committee in making correct entries where doubt arises in your mind.

"Very truly yours."

The Committee wishes it understood that the facts and figures given in this report are not an expression of opinion of the Committee, but are taken directly from these questionnaires which were returned, and the Committee also believes that these questionnaires should be filed in some place where they will be available for any future committee to study.

...Dr. Booker then presented the prepared report as follows:

In an effort to secure detailed data, the Committee on Maternal and Infant Mortality submitted a questionnaire to each of the physicians whose name appeared on the death certificate registered with the State Board of Health.

From July 1937 to August 1938, inclusive, there were 23 deaths classified as maternal deaths, which gives a rate of 53 per 10,000 live births. This compares with a rate of about 59 per 10,000 live births for the entire United States. Your Committee is of the opinion that two of these deaths were wrongly classified and should be excluded, which will give a corrected rate of 48.4.

Seventeen questionnaires were returned. Twenty of these deaths occurred in a hospital and three in the home. Causes of death were as follows: Intestinal obstruction—post operative—Caesarean; thrombo-phlebitis of right ovarian vein; criminal abortion—ruptured appendix with peritonitis; unruptured ectopic found at operation. These are the two deaths that were mentioned above as having been excluded in this study. Ruptured tubal pregnancy; abdominal pregnancy with pelvic peritonitis and tubo-ovarian abscess; pyelophlebitis; septicemia; massive thrombosis; hemorrhage and coronary thrombosis; coronary embolism; intra-abdominal delivery of foetus and placenta; shock due to infarct; premature separation of the placenta; rheumatic heart disease; convulsive toxemia; pelvic peritonitis.

Four of the above deaths were classified as due to infection, eight were classified as preventable, and nine as non-preventable. Ignorance or neglect on the part of the patient was a contributing factor in six deaths. Error in judgment of the attending physician was a factor in two cases. Nine patients were hospitalized by pre-arrangement, and eight were admitted as emergencies. Eight babies were live-born and seven were still-born. No questionnaire showed attendance by a midwife prior to medical attention. Due to the incompleteness of so many of the questionnaires it

is impossible to give more detailed data on many other phases of this subject.

As this is the first time that such a study has been attempted your Committee would like to have some expression of opinion as to its value, and as to whether this subject is to be further studied in the future.

Respectfully submitted,
LEWIS BOOKER.

PRESIDENT PRICKETT: Is there any discussion of this report, gentlemen?

DR. SMITH: It seems to me that some of those deaths are quite far-fetched. We cut the maternal mortality rate down a little more than is indicated in that report. I don't know just how thoroughly the Committee went into it. Did you investigate those deaths pretty thoroughly, Doctor?

DR. BOOKER: Those were taken from the records of the State Board of Health. We did not make any further investigation of their records, except to take that list and to classify them.

DR. SMITH: I think if you would make a little more current investigation of it you would find that the rate has been cut down considerably.

DR. BOOKER: In answer to Dr. Smith, I might say there is one death listed there which occurred fifty-three days after delivery. It was my understanding that any death occurring within sixty days after delivery is to be classified as a maternal death.

PRESIDENT PRICKETT: Is there any further discussion? What is your pleasure with the report?

DR. CHIPMAN: I move the report be accepted.

DR. FORREST: And that the Committee be continued.

PRESIDENT PRICKETT: The motion is that the report be accepted and the Committee continued. Is it seconded?

...The motion was seconded by Dr. McElfatrick, put to a vote, and carried...

PRESIDENT PRICKETT: The next item of business is the report of the Delegate to the American Medical Association, Dr. Fitchett.

Report of Delegate to A. M. A.

DR. FITCHETT: Mr. President, Members of the House of Delegates: I am afraid I have too conscientious a report here, so I shall simply present the items that I think you will be concerned with mainly.

The San Francisco convention was held last June. In the Secretary's report to that convention were one or two items we should note. He stated that there was a need for increased interest in scientific work, particularly in the county societies. He emphasized the fact that the A. M. A. depends essentially for its strength on the activity of its constituent state and component county units. Unfortunately, he stated, there appears to be a deplorably large number of these units that are stagnant, and this condition must be corrected if the Association is to function effectively.

In this connection, in President-Elect Abell's address, he made an urgent plea for an ever-widening expansion of the refresher courses now being offered to physicians so circumstanced as not to be able to procure these advantages in the larger teaching centers.

The report of the Board of Trustees was concerned in large part with the survey, which you have all heard about, and the importance of that survey was emphasized and re-emphasized

throughout the session. Each delegate was instructed to return to his state society with the plea that that survey be completed as well as it could be, as soon as possible. I won't go into that any further.

The Reference Committee on Legislation and Public Relations recommended, and the House adopted, the following: (1) The reiteration of its demand for a Department of Health, with an M. D. in the President's Cabinet; (2) to safeguard the injured workman, the carrier, and the physician, the state societies were urged to attempt to procure medical membership on state compensation commissions or industrial boards; (3) the ten principles adopted in 1934 to guide the state and county societies in developing procedures for supplying the needs where medical services are insufficient or unavoidable were reaffirmed; (4) the ten principles adopted in 1937 by the House in regard to group hospitalization were amplified. For four years and for one year now, we have had these rules to aid us in developing our own plans for group hospitalization and for medical care.

You are all familiar with the fact that Dr. Sleyster is the President-Elect, and you all know the next conventions will be held in St. Louis in 1939, in New York in 1940, and in Cleveland in 1941.

The Chicago meeting was a special session called by the Board of Trustees to consider the five proposals of the National Health Conference. You are all familiar with that but I think they are important enough for me to read, so I am going to read them.

The House agreed with the Government's proposals on some points and differed with them on others. They differed with them completely on the approach to the entire subject, with the exception of the public health measures. That is, when we look at the House proposals and the Government's proposals, we see Federal versus local supervision and accomplishment. So they disagreed with them, in the main.

There was nothing particularly new in the proposals as they were all based on the ten proposals of the 1934 House on medical care and the 1937 proposals on group hospitalization. There is nothing new about them.

The recommendations made by the Committee and adopted after discussion by the House are as follows:

I. Concerning the expansion of public health facilities:

(a) Reiterated the demand for a Federal Department of Health;

(b) The general principles for the expansion of the public health service and maternal and child health services were approved and the cooperation of the A. M. A. was assured in developing efficient and economical means of putting the program into effect.

(c) Any expenditures made for the expansion of the program should not include the treatment of disease except so far as this cannot be successfully accomplished through the private practitioner.

II. Concerning the expansion of hospital facilities:

(a) Recommended the expansion of general hospital facilities where the need exists. The situation would indicate that there is a present greater need for the use of existing facilities than for additional hospitals.

The stability and efficiency of many existing

church and voluntary hospitals could be assured by the payment to them of the costs of the necessary hospitalization of the medically indigent.

III. Recommendations on medical care for the medical needy:

The House recognized the principle that the complete medical care of the indigent is a responsibility of the community, and allied professions and that much care should be organized by local governmental units and supported by tax funds. Since the indigent now constitute a large group in the population, the House recognized that the necessity for state aid in medical care may arise in poorer communities and the Federal Government may need to provide funds when the state is unable to meet the emergency.

They went on to say that they wished to see established well coordinated programs in the various states of the nation for improvement of food, housing, and other environmental conditions which have the greatest influence on the health of the people; also the establishment of a definite and far-reaching public health program for the education and information of all the people in order that they may take advantage of the present medical service now available in this country.

They welcomed the appropriation of funds to provide medical care for the medical needy provided (1) that the public welfare administrative procedures are simplified and coordinated and (2) that the provision of medical services is arranged by responsible local public officials in cooperation with the local medical profession and its allied groups. They endorsed the suggestion of the National Health Conference that "the role of the Federal Government should be principally that of giving financial and technical aid to the states in their development of sound programs through procedures largely of their own choice."

IV. A general program of medical care:

Because health needs and means to supply them vary throughout the country, the House encouraged county or district medical societies, with the approval of their state society, to develop appropriate means to meet their local requirements.

The principle of hospital service insurance was approved, as long as it provided hospital facilities alone and did not include any type of medical care.

The principle of cash indemnity insurance for meeting sickness costs was approved, as long as such plans complied with the state insurance laws and met with the approval of the state and county medical societies.

Any system of compulsory health insurance was condemned.

V. The recommendation on insurance against the loss of wages by sickness was unreservedly endorsed.

A committee of seven was named to consult with the proper Federal authorities relative to the proposed National Health program.

The entire session was characterized by a seriousness of purpose and a unanimity of expression and action such that it had a very wholesome effect in allaying doubts and fears as to the position of the A. M. A.

We were given the expression out there that if we have a particular problem here in Delaware, for example, or to bring it closer home, in Kent County, it is up to us and not the American Medical Association to meet that problem. They have given us a survey to determine what needs exist

here, if there are needs, and we have these ten proposals and have had them since 1934 to work on, to draw up our own program for meeting our needs here. The problem, as I see it, that was presented to us in Chicago was that it is essentially our own problem and it is for us to work out and not the American Medical Association.

PRESIDENT PRICKETT: Thank you for your report, Dr. Fitchett.

Has anyone any questions he wants to ask Dr. Fitchett about the report?

DR. BIRD: I move the report be accepted. . . .The motion was seconded by Dr. McElfattrick, put to a vote and carried. . .

PRESIDENT PRICKETT: Next is the report of the Representative to the Delaware Academy of Medicine. Dr. La Motte is not here so the Secretary will present that.

. . .Secretary Gilliland presented the report of the Representative to the Delaware Academy of Medicine as follows:

Report of Representative to Delaware Academy of Medicine

There has been constant use of the Library during the past year by the members and medical students, and also by the various local libraries through inter-library loan service. Several gifts of books and journals have been received. Our collection of books and files of journals has steadily grown during the past five years until we are able to meet most of the requests for reference material. When necessary we supplement with material from the larger medical libraries through the inter-library loan service.

Recently several old books of interest have been received, and of particular interest is a collection of old surgical and dental instruments, used by Dr. Morrison, a practitioner on the Eastern Shore of Maryland during the Civil War and later a druggist at Second and King streets, presented to the Library during the summer.

The program arranged by the Scientific Committee during the past season was varied, the papers being ably presented by authorities on medical, surgical and dental subjects, the last two meetings being of interest to both physicians and dentists.

Respectfully submitted,
W. O. LA MOTTE.

PRESIDENT PRICKETT: What is your pleasure, gentlemen?

DR. BIRD: I move the report be accepted. . . .The motion was seconded by Dr. McElfattrick, put to a vote, and carried. . .

PRESIDENT PRICKETT: Next is Unfinished Business. Under that heading we will have the report of the Nominating Committee.

DR. FORREST: The secretary of the Committee will present the report.

Report of the Nominating Committee

DR. MCDANIEL: Mr. President and Members of the House of Delegates: We present the following nominations:

First Vice President—Bruce Barnes, Seaford.
Second Vice President—Chas. G. Harmonson, Smyrna.

Secretary—A. V. Gilliland, Smyrna.
Treasurer—A. L. Heck, Wilmington.
Councilor—Roger Murray, Wilmington.

Committee on Scientific Work—Lawrence Jones, Wilmington; Stanley Warden, Dover; the Secretary.

Committee on Public Policy and Legislation—E. R. Mayerberg, Wilmington; Lewis Booker,

New Castle; J. S. McDaniel, Dover; Roscoe Elliott, Laurel; the Secretary.

Committee on Publication—W. E. Bird, Wilmington; M. A. Tarumianz, Farnhurst; the Secretary.

Committee on Medical Education—T. H. Davies, Wilmington; J. S. McDaniel, Dover; William Marshall, Milford.

Committee on Hospitals—C. L. Munson, Wilmington; H. V. P. Wilson, Dover; N. R. Washburn, Milford.

Committee on Necrology—Victor D. Washburn, Milford; C. G. Harmonson, Smyrna; N. W. Hocker, Lewes.

Recommendations to the Governor for the Board of Medical Examiners—Olin S. Allen, Wilmington; John Mullin, Wilmington; T. H. Davies, Wilmington; J. S. McDaniel, Dover; William Marshall, Milford; Wm. H. Speer, Wilmington; W. Edwin Bird, Wilmington; Lawrence J. Rigney, Wilmington; C. J. Prickett, Smyrna; Richard Beebe, Lewes.

The special committees, I believe, are appointed by the President.

PRESIDENT PRICKETT: What is your pleasure with the report of the Nominating Committee?

DR. TOMLINSON: Are nominations in order now or subsequently?

PRESIDENT PRICKETT: Nominations from the floor would be in order now.

DR. TOMLINSON: May we do so before this report is acted upon?

PRESIDENT PRICKETT: Yes, sir.

DR. TOMLINSON: Prefatorially, Mr. President and Members of the House of Delegates, I would like to inaugurate what I have to say by a very trite and frank statement to Dr. Gilliland that that which follows does not emanate from personal feeling because I have no animus.

Last year Dr. Gilliland succeeded Dr. Speer. Subsequent to his acceptance of the office of Secretary there developed in the minds of some of the delegates a feeling that the institution of such a plan had been the result of too rapid and too little consideration in the minds of some, and I might say in the minds of many of those who constituted the body of the House of Delegates.

I was called by phone by one member of such body and apprised of the mental complexion which had thus been engendered, and concurred in the expression of sentiment. There had evidently been—not through any participation on the part of Dr. Gilliland—a steam roller process employed which had some of the earmarks of political coniving.

As Dr. George Forrest knows and as Dr. Meredith Samuel knows, if he is here, I was so placed as a boy that I saw the engenderment of the legislation which constituted the primal protective mechanism surrounding not the physicians of this state, but the population at large, to keep them from the ministrations of those who were not duly qualified by processes of medical education to alleviate pathological entities. I know the fervor which imbued those men, their honesty of purpose, and the sincerity of their convictions relative to the imperativeness of such legislation. One of the participants in those efforts was the late Dr. Louis Flynn. Conferences were held, and the men felt that they had accomplished something which would accrue great benefit to this community represented by the state.

In this small coterie of professional confreres, about the only honor or acclaim which can be accorded to one of our number is a recognition of

merit in that individual by his medical associates, and possibly the only way in which that may be eventuated is by elevation to one of the senior offices of this Society.

I think the oppositional feeling which was begotten last year emanated largely from this fact—and I say this without any reflection upon Dr. Gilliland's personality, his professional attainments or his ability—that there was a feeling that perchance one who was a freshman in this college of practicing physicians had made the team. Well, usually freshmen take a "plebe" year and then when ability is shown, it is recognized.

There was an effort on foot to have a reconsideration of this election and then it was adjudged inexpedient to put that through.

I have no personal feeling in the matter from Dr. Gilliland's standpoint. His services have been efficient. He has been enthusiastic, and he has achieved. I do feel, with some of my confreres, that this position ought to be accorded to an individual who has been a longer co-worker in the vineyard of effort of our daily lives, and I want to put in nomination for the secretaryship of the Medical Society of Delaware a man who is a native-born Delawarean, one who is a descendant of a family long and respectably known, a family which has achieved, an individual who is noted for his graciousness of salutation, for his kindness of friendship, for his sterling integrity as a man, and for his excellent professional attainments. I am not going to tire you with a longer tirade of eulogy because to do so would be purely a hollow effort.

I would like to place in nomination the name of Dr. John Mullin for the secretaryship of the Medical Society of Delaware.

DR. SMITH: I second the nomination.

PRESIDENT PRICKETT: Are there any other nominations?

DR. NILES: Is further discussion of this nomination in order?

PRESIDENT PRICKETT: Yes.

DR. NILES: I would like then to make a statement.

In the first place, about the only public reward that the physicians of this state or of any other state get is some position of note in the medical society, and that honor should go to a man who has practiced long and successfully and within the bounds of etiquette and medical ethics.

Although we may have younger men in our Society who would make excellent secretaries, I beg to state to you that there isn't any man in this Society who couldn't, if he wanted to be, an efficient secretary. So the matter of ability of the man is out of the question.

But there is a cardinal question that we should weigh, and on which I feel deeply, and that is that the older men, the men of long standing in the profession of the state, should have the preference when it comes to selecting candidates for the offices of our organization. There are a number of young men that are fine, and who have the same qualities maybe that the older men have, but we must not overlook the fact that these older men, the men who have practiced medicine in this state for fifteen, twenty, and thirty years, must be given a hearing, and we must hand them on a silver platter what little honor we can give them as a reward for their integrity and as a reward for their having lived within the ethics and etiquette of our medical organization.

So I wish to second the nomination, if it hasn't already been done, of Dr. Mullin. Dr. Mullin has

been an outstanding character in our medical profession and he has been liked, in fact loved, by all. I feel that we should present him with this honor, not that Dr. Gilliland isn't worthy, but I feel from Dr. Mullin's standpoint as a senior member of this Society and of the profession in this state he should be recognized at this time.

PRESIDENT PRICKETT: Are there any other nominations?

DR. BIRD: Mr. President, if there are no other nominations, and I hear none, I move that the report of the Nominating Committee be accepted, which carries election of all the officers except the Secretary, upon which we will ballot later.

...The motion was seconded by Dr. McElfatrick...

PRESIDENT PRICKETT: It is moved and seconded that the recommendations of the Nominating Committee, with the exception of that for the office of Secretary, be adopted. All those in favor of the motion say, "Aye"; opposed, the same sign. The "Ayes" have it and the Secretary will cast the ballot.

SECRETARY GILLILAND: I so do.

PRESIDENT PRICKETT: I declare these gentlemen elected.

We have two candidates for the office of Secretary. One, Dr. Gilliland, the present incumbent, is named by the Nominating Committee, and Dr. John Mullin is nominated by Dr. Tomlinson. Do you wish to vote by ballot?

DR. MCELFRICK: By ballot.

PRESIDENT PRICKETT: The election then will be by ballot. I will appoint as tellers Dr. Niles and Dr. Bird.

...The ballots were distributed and the members of the House of Delegates proceeded to vote...

PRESIDENT PRICKETT: I have the report of the tellers which is as follows: Dr. Gilliland received six votes, Dr. Mullin nineteen. I therefore declare Dr. John Mullin elected Secretary of the Medical Society of Delaware.

DR. MULLIN: Gentlemen, all I can say is that I will try to do the best I can. I am sure I will need some help, though, and I am sure Dr. Gilliland will be able to help me considerably.

PRESIDENT PRICKETT: I congratulate Dr. Mullin on his election, and wish to state publicly that Dr. Gilliland has been a most efficient Secretary.

New Business

The next order of miscellaneous is New Business. Under that we have Resolutions. I will call on Dr. Gilliland as chairman of the Committee appointed to preview the picture, "Birth of a Baby," to present a resolution along that line.

SECRETARY GILLILAND: Mr. President and Members of the House of Delegates: A special committee appointed by the President this afternoon, consisting of Drs. McElfatrick, Tomlinson, Gay, Davidson, McCollum, and myself previewed the film, "The Birth of a Baby," and present the following report:

Your Committee has previewed the film, "The Birth of a Baby," and unanimously recommends that the House of Delegates approve this picture for public showing in the state of Delaware to persons over the age of sixteen years, or younger, if accompanied by parents.

It is understood that this endorsement does not entail any legal or financial responsibility on the part of the Medical Society of Delaware.

PRESIDENT PRICKETT: What is your pleasure on this matter?

DR. BIRD: Who has seen the picture?

SECRETARY GILLILAND: It is the recommendation of the Committee—

DR. BIRD: Has the Committee seen the film?

SECRETARY GILLILAND: Yes, the Committee previewed the film.

DR. BIRD: I move then that we adopt the report of the Committee, which carries with it a recommendation for the okeh of the picture.

...The motion was seconded by Dr. Smith, put to a vote, and carried...

DR. WILSON: Mr. President, I would like to request the privilege of the floor for Dr. Speer who has a message from the Fracture Committee of the College of Surgeons.

DR. SPEER: Mr. President, the American College of Surgeons for the last several years has been attempting to organize the treatment of fractures throughout the country in a manner so that each community will be able to take care of fractures of any sort.

I have been appointed Regional Chairman for this state and have on my committee Dr. Bird, Dr. Munson, Dr. Beebe, and Dr. Wilson.

I would like, if this House of Delegates so feel, to have them pass a motion stating that they are in accord with this attempt of the American College of Surgeons to standardize the treatment of fractures, so that I can report that to the Fracture Committee in New York next week.

DR. BIRD: Mr. President, I move it be declared the sense of this Medical Society, as voiced in this House of Delegates, that we approve the efforts of the American College of Surgeons to standardize the treatment of fractures in this country.

...The motion was seconded by Dr. Tomlinson, put to a vote, and carried...

PRESIDENT PRICKETT: Are there any other resolutions?

I have a communication: The Wilmington New Century Club extends a cordial invitation to the members of the Delaware Medical Society to attend a lecture, "The Road Ahead in Public Health," to be given by Dr. Thomas Parran, Surgeon-General of the United States Public Health Service, at the Club, 1014 Delaware avenue, on November 9, at 3.15.

At this time it is customary to order all bills paid for this session after approval by the Finance Committee.

DR. BIRD: Does that require a motion, sir?

PRESIDENT PRICKETT: Yes.

DR. BIRD: I so move.

...The motion was seconded by Dr. Mullin, put to a vote, and carried...

PRESIDENT PRICKETT: Next is Approval of the Scientific Program.

DR. BIRD: I move the program as printed be approved.

...The motion was seconded by Dr. Tomlinson, put to a vote, and carried...

PRESIDENT PRICKETT: Next is the selection of a meeting place for next year. The proper rotation, of course, would take it to New Castle County.

DR. MULLIN: I move that Wilmington be the place of the next meeting.

...The motion was seconded by Dr. Tomlinson, put to a vote, and carried...

PRESIDENT PRICKETT: Miscellaneous Business.

DR. BIRD: Mr. President, Dr. Mayerberg has been speaking to me about a matter that was previously discussed, in connection with one of the reports, and wants to know if we will give him the privilege of the floor for a moment or so, and I so request.

PRESIDENT PRICKETT: It is granted.

DR. MAYERBERG: Mr. President, I asked for this privilege because I have been thinking over that resolution that the House of Delegates adopted after Dr. Tarumianz's report.

That resolution is entirely wrong. In the first place, we ask the Medical Society of Delaware to ask the Legislators to appropriate funds. Dr. Tarumianz told us here that he was crowded, that he needed 350 beds, and on top of that he asks for funds and buildings to take care of all the drunks that we can corral in the state and every senile victim that we can find in the state.

We have agencies in each county throughout the state to take care of the senile. His hospital is a mental hospital, not a dumping-ground for all the derelicts that we can find. I want you to know that it costs the taxpayers a lot of money to run that institution. If we are going to keep adding and adding to take care of these miscellaneous cases, there will be no stopping. I would suggest that you just build a roof over the state. That would be the best thing to do.

I have no right—I am not a delegate—to move that that particular resolution be reconsidered or rescinded, but I do serve notice now that if some action isn't taken by tomorrow morning I am going to get up on the floor in open meeting and bring this point up before the general organization because I feel very, very strongly on that point.

Dr. Tarumianz has a marvelous hospital and there is not a finer superintendent or manager anywhere than he is. I admire him and I respect him for his ability. He is a humanitarian, I am afraid too much so, because certainly he should have stopped to consider the expense of the project. That hospital should not be made the dumping-ground for all the derelicts in the state or those who may wander into the state.

DR. TARUMIANZ: Mr. President, if my good friend, Dr. Mayerberg, will have the stenographer read that resolution that we adopted, he will see that there is not a word in it about the Delaware State Hospital. It says, "to make adequate provision for seniles and alcoholics who do not have psychoses."

I don't care where you send them as long as you don't send them to jail, because if you or I had an unfortunate father who was a drunkard we certainly wouldn't like to see him in jail for ten or twenty days. The same thing applies to seniles. We don't want any of them. We are simply asking you to do something so they will not be a community problem. I didn't ask that they should be sent to State Hospital and you will not find a single word in that resolution about the State Hospital. We certainly don't have any means to take care of them. We don't have means to take care of our adequately diagnosed psychotics so, obviously, I wouldn't ask for such a thing.

I said in my report, but not in the resolution, if they don't find any other means to take care of them and if the Legislature finds it appropriate to do so, that they create additional departments that would be on an entirely different basis. For instance, alcoholics must go into a special colony, a self-supporting colony, as they do in Wisconsin.

DR. MAYERBERG: That satisfies my point.

DR. TARUMIANZ: It has nothing to do with Delaware State Hospital. The only thing that

(Continued on Page 264)

EDITORIAL

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VOL. X DECEMBER, 1938 No. 12

WHAT THE LAYMAN THINKS

In the flurry that precedes the January legislatures one finds quantities of propaganda for this, that and the other thing, much of which is of no special importance to the medical profession, but some of which is not only of interest to us but—sad but true—actually hostile. How refreshing it is, then, to find a kind word for the doctor, here and there! Anent the fanfare for compulsory health insurance, the *American Agriculturist*, oldest farm journal in America, in its leading editorial of November 5, 1938, has this to say, for which our thanks:

NO "STATE MEDICINE" FOR AMERICANS

A few days ago a woman friend was visiting with me about how much good in the world a doctor, whom we both know, had done in helping

people with arthritis. "But, you know," said my friend, "that doctor's cheerfulness and optimism always helped me almost as much as his medicine."

Another one of my physician friends has a big sign up in his office which reads, "Take my pills and grow fat." I have known that old doctor ever since I can remember, and I know that his pills help a lot but not half so much as his friendly, jolly, encouraging personality.

In my own family was an uncle who as a country doctor rode the rural hills through the sunshine and storms of sixty years. There is hardly an old farm family of that whole section who has not had the experience of feeling the awful responsibility and worry over a sick loved one lift when that kindly, cheerful old family doctor finally got on the scene.

But now our friends, the reformers, would change all this. They think that the family doctor is a relic of the horse and buggy days. So into Congress in the next session bills will be introduced which would replace our present system of medicine by having the government take it over and run it. "State" medicine is the name of the new scheme. There are many poor people under the present system who probably go without adequate medical and dental care because of the expense. It is true also that many doctors have to do too much for nothing or overcharge those who pay because of those who can't or won't.

But the remedy is certainly not regimentation of doctors and medicine under a lot of Federal bureaucrats, with the whole system more or less controlled by politics. It is certainly not the appointment by some government agent of a certain doctor for your family whether you like him or not, his fees paid by the government from public taxes. That very thing would destroy the splendid relationship between the family physician and his patient which has become an American tradition. In its place there would be substituted a medical man, an employe of some government bureau and not your employe.

The doctors themselves, through their organizations, have suggested an answer to the problem:

First: Let the state continue and even extend its public health work to *educate* and *guard* people in the field of *preventive* medicine.

Second: Arrange for that part of the population which is clearly unable to pay doctors' and dentists' fees to be taken care of by local authorities or possibly by representatives of the State Health Department, never by distant Federal authorities. Under this plan the doctor would not have to do too much charity work nor overcharge his paying patients.

Third: Leave the rest of us alone to run our own lives, choose our own physician and pay him a reasonable fee. Then we can continue to stand on our own feet, keep our self-respect and maintain the splendid and helpful relationships that have existed in the past between the doctor and his patient.

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Delaware State Hospital might do would be to give a guiding hand if they create such a colony. But it is a problem that every general practitioner is confronted with every day and something must be done about it.

As to sedatives, that doesn't enter into this question at all, I suppose.

Is that clear?

DR. MAYERBERG: Yes, that satisfies me.

DR. TARUMIANZ: I don't want to have any misunderstanding. We don't want any more burden than we now have.

PRESIDENT PRICKETT: Is there any other miscellaneous business? If not, I will entertain a motion for adjournment.

... Upon motion duly made, seconded, and carried, the meeting adjourned at eleven forty-five o'clock p. m....

BOOK REVIEW

Sickness Insurance in Europe. By J. G. Crownhart, Secretary, State Medical Society of Wisconsin. Pp. 134. Cloth. Price, \$1.00. J. G. Crownhart, Madison (Wis.), 1938.

Mr. Crownhart's book, originally published as a supplement to the October *Wisconsin Medical Journal*, gives us an authoritative picture of things as they are, utterly devoid of bias or propaganda. The pages recite factually the conditions found in Europe after many years of experience with compulsory health insurance, and once these facts lodge clearly in our minds, we are compelled to say once more: we like the free-thinking, free-acting American way best. This is the best documented book on this subject that has yet come our way.



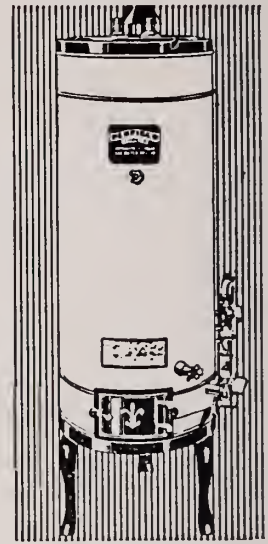
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While Oleum Percomorphum cannot replace the sun, it is a valuable supplement. Unlike the sun, it offers measurable potency in controlled dosage and does not vary from day to day or hour to hour. It is available at any hour, regardless of smoke, season, geography or clothing. Having 100 times the vitamins A and D content of U.S.P. cod liver oil (U. S. P. minimum standard), Oleum Percomorphum can be administered in drops, which makes it an ideal year-round antiricketic. Use the sun, too.

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